HCD-ZX50MD

SERVICE MANUAL

Ver 1.2 2001.12

Self Diagnostics
Supported model

US Model
AEP Model
UK Model
E Model
Australian Model



HCD-ZX50MD is the tuner, deck, CD, MD and amplifier section in DHC-ZX50MD.

This stereo system is equipped with the Dolby* B-type noise reduction system.
* Dolby noise reduction manufactured under license from Dolby Laboratories Licensing Corporation. "DOLBY" and the double-D symbol ⅅ are trademarks of the Dolby Laboratories Licensing Corporation.

CD SECTION	Model Name Using Similar Mechanism	NEW
	CD Mechanism Type	CDM53F-K4BD40
	Base Unit Type	BU-K4BD40
	Optical Pick-up Type	KSM-213DHAP/Z-NP
MD SECTION	Model Name Using Similar Mechanism	MDS-JE640
	MD Mechanism Type	MDM-7B
	Optical Pick-up Type	KMS-260B/J1N
TAPE DECK SECTION	Model Name Using Similar Mechanism	HCD-ZX10
	Tape Transport Mechanism Type	TCM-230AWR12

SPECIFICATIONS

Amplifier section
AUDIO POWER SPECIFICATIONS:
(US model only)

POWER OUTPUT AND TOTAL HARMONIC DISTORTION:

with 8 ohm loads both channels driven, from 120–10,000 Hz; rates 80 watts per channel minimum RMS power, with no more than 10 % total harmonic distortion from 250 milliwatts to rated output.

Total harmonics distortion Less than 0.07 % (8 ohms at 1 kHz, 50 W)

European model:

DIN power output (rated) 60 + 60 watts (8 ohms at 1 kHz, DIN)
Continuous RMS power output (reference) 80 + 80 watts (8 ohms at 1 kHz, 10 % THD)
Music power output (reference) 140 + 140 watts (8 ohms at 1 kHz, 10 % THD)

Other models:

The following measured at 120/220/240 V AC, 50/60 Hz
DIN power output (rated) 115 + 115 watts (6 ohms at 1 kHz, DIN)
Continuous RMS power output (reference) 150 + 150 watts (6 ohms at 1 kHz, 10 % THD)

Inputs
VIDEO (AUDIO) IN: (phono jacks) voltage 250 mV, impedance 47 kilohms
MIC: (mini jack) (Asian model only) sensitivity 1 mV, impedance 10 kilohms

Outputs
PHONES: (stereo mini jack) accepts headphones of 8 ohms or more
FRONT SPEAKER:
US and European models: accepts impedance of 8 to 16 ohms
Other models: accepts impedance of 6 to 16 ohms
SUPER WOOFER: Voltage 1 V, impedance 1 kilohms

CD player section

System Compact disc and digital audio system
Laser: Semiconductor laser (λ=780nm) Emission duration: continuous
Laser output: Max. 44.6 μW*
*This output is the value measured at a distance of 200 mm from the objective lens surface on the Optical Pick-up Block with 7 mm aperture.
Wavelength: 780 – 790 nm
Frequency response: 2 Hz – 20 kHz (±0.5 dB)
Signal-to-noise ratio: More than 90 dB
Dynamic range: More than 90 dB

— Continued on next page —

MINI Hi-Fi COMPONENT SYSTEM

9-929-512-13
2001L0200-1
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Sony Corporation
Home Audio Company
Published by Sony Engineering Corporation

SONY®

MD deck section

System	MiniDisc digital audio system
Laser	Semiconductor laser (π=780 nm) Emission duration: continuous Laser output Max. 44.6 µW* *This output is the value measured at a distance of 200 mm from the objective lens surface on the Optical Pick-up Block with a 7 mm aperture.
Sampling frequency	44.1 kHz
Frequency response	20 - 20,000 Hz

OPTICAL IN (North American model only)
(Square optical connector jacks, rear panel)

Wavelength	700 nm

Tape player section

Recording system	4-track 2-channel stereo
Frequency response (DOLBY NR OFF)	40 – 13,000 Hz (±3 db), using Sony TYPE I cassette 40 – 14,000 Hz (±3 db), using Sony TYPE II cassette

Tuner section

FM stereo, FM/AM superheterodyne tuner

FM tuner section

Tuning range

US model:	87.5 – 108.0 MHz (100 kHz step)
Other models:	87.5 – 108.0 MHz (50 kHz step)
Antenna	FM lead antenna
Antenna terminals	75 ohm unbalanced
Intermediate frequency	10.7 MHz

AM tuner section

Tuning range

US model:	530 – 1,710 kHz (with the interval set at 10 kHz) 531 – 1,710 kHz (with the interval set at 9 kHz)
European model:	531 – 1,602 kHz (with the interval set at 9 kHz)
Other models:	531 – 1,602 kHz (with the interval set at 9 kHz) 530 – 1,710 kHz (with the interval set at 10 kHz)
Antenna	AM loop antenna
Antenna terminals	External antenna terminal
Intermediate frequency	450 kHz

General

Power requirements

US model:	120 V AC, 60 Hz
European model:	230 V AC, 50/60 Hz
Australian and New Zealand models:	230 – 240 V AC, 50/60 Hz
Mexican model:	120 V AC, 60 Hz
Other models:	120 V, 220 V, 230 – 240 V AC, 50/60 Hz Adjustable with voltage selector

Power consumption

US model:	150 watts
European model:	160 watts
Other models:	180 watts

Dimensions (w/h/d)	Approx. 250 x 375 x 395 mm

Mass

US model:	Approx. 11.5 kg
European model:	Approx. 11.5 kg
Other models:	Approx. 12.0 kg

Supplied accessories:	AM loop antenna (1) FM lead antenna (1) Remote Commander (1) Batteries (2) Speaker cords (2) Front speaker pads (8)

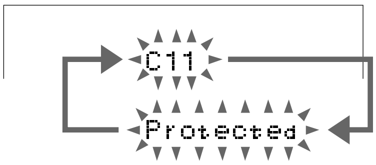
Design and specifications are subject to change without notice.

SELF-DIAGNOSIS FUNCTION

The self-diagnosis function consists of error codes for customers which are displayed automatically when errors occur, and error codes which show the error history in the test mode during servicing. For details on how to view error codes for the customer, refer to the following box in the instruction manual. For details on how to check error codes during servicing, refer to the following "Procedure for using the Self-Diagnosis Function (Error History Display Mode)".

Self-diagnosis Display

This system has the Self-diagnosis display function to let you know if there is a system malfunction. The display shows a code made up of three letters and a message alternately to show you the problem. To solve the problem refer to the following list. If any problem persists, consult your nearest Sony dealer.



C11 / Protected

The MD is protected against erasure.

→ Remove the MD and slide the tab to close the slot (page 37).

C12 / Cannot Copy

You are attempting to record a CD with a format that the system does not support, such as CD-ROM.

→ —

C13 / REC Error

Recording is not possible.

→ Move the system to a stable place and start recording over from the beginning.

The MD is dirty or is scratched or the MD does not meet the standards.

→ Change the MD with another one and start recording over from the beginning.

C13 / Read Error

The MD cannot read the disc information correctly.

→ Eject the MD once, then insert it again.

C14 / Toc Error

The MD cannot read the disc information correctly.

→ Change the MD with another one.

→ Erase all the recorded contents of the MD using the Erase function on page 52.

C41 / Cannot Copy

This unit complies with the Serial Copy Management System (SCMS) which limits the number of digital copies that can be made of any given digital audio source (page 90).

C71 / Check OPT-IN

You tried to record from the digital component when no component is connected to OPTICAL IN jack or the digital component is not connected correctly.

→ Connect the digital component correctly to OPTICAL IN jack with a digital optical cable.

The power of the connected digital component is off.

→ Turn on the digital component.

E0001 / MEMORY NG

The component has internal problems.

→ Consult your nearest Sony dealer.

E0101 / LASER NG

There is a problem with the laser pickup.

→ The laser pickup may be damaged. Consult your nearest Sony dealer.

Procedure for using the Self-Diagnosis Function (Error History Display Mode).

Note: Perform the self-diagnosis function in the "error history display mode" in the test mode. The following describes the least required procedure. Be careful not to enter other modes by mistake. If other modes are entered accidentally, press the NAME EDIT/CHARACTER button while REC IT is lit, and when REC IT goes off, press the MD ⏏ button to exit the mode.

1. In the power ON state, set the function to MD, and while pressing the DISPLAY and ■ buttons together, press V-GROOVE . While the test mode is set. "[Check]" will be displayed.
2. Move the multi-stick left and right to display "[Service]" and press the PUSH ENTER button.
3. Move the multi-stick left and right to display "Err Display".
4. Press the PUSH ENTER button to enter the error history mode. "op rec tm" will be displayed.
5. Select the item to be displayed or executed using the multi-stick.
6. Press the NAME EDIT/CHARACTER button so that REC IT lights up.
7. Press the MD REC MODE button to display the selected item.
8. Press the REC MODE button another time to return to step 4.
9. Pressing the CLEAR button when REC IT is lit displays "Err Display" and exits the error history display mode.
10. To exit the test mode, press the MD ⏏ button while REC IT is off. This sets the standby state and ends the test mode.

ITEMS OF ERROR HISTORY MODE ITEMS AND CONTENTS

Selecting the Test Mode

Display	History
op rec tm	Displays the total recording time. When the total recording time is more than 1 minute, displays the hour and minute When less than 1 minute, displays “Under 1 min” The display time is the time the laser is set to high power, which is about 1/4 of the actual recording time.
op play tm	Displays the total playback time. When the total playback time is more than 1 minute, displays the hour and minute When less than 1 minute, displays “Under 1 min”
spdl rp tm	Displays the total rotating time of the spindle motor. When the total rotating time is more than 1 minute, displays the hour and minute When less than 1 minute, displays “Under 1 min”
retry err	Displays the total number of retry errors during recording and playback Displays “r xx p yy”. xx is the number of errors during recording. yy is the number of errors during playback. This is displayed in hexadecimal from 00 to FF.
total err	Displays the total number of errors Displays “total xx”. This is displayed in hexadecimal from 00 to FF.
err history	Displays the past ten errors. Displays “0x ErrCd@@”. X is the history number. The younger the number, the more recent is the history (00 is the latest). @@ is the error code. Select the error history number using the Multi stick.
retry adrs	Displays the past five retry addresses. Displays “xx ADRS yyyy”, xx is the history number, yyyy is the cluster with the retry error. Select the error history number using the Multi stick.
er refresh	Mode for erasing the error and retry address histories Procedure 1. Press the [MD REC MODE] button while “REC IT” is lit when displayed as “er refresh”. 2. Press the [PUSH ENTER] button when the display changes to “er refresh?”. When “complete!” is displayed, it means erasure has completed. Be sure to check the following after executing this mode. *Data has been erased. *Perform recording and playback, and check that the mechanism is normal.
op change	Mode for erasing the total time of op rec tm, op play tm. These histories are based on the time of replacement of the optical pick-up. If the optical pick-up has been replaced, perform this procedure and erase the history. Procedure 1. Press the [MD REC MODE] button while “REC IT” is lit when displayed as “op change”. 2. Press the [PUSH ENTER] button when the display changes to “op change?”. When “Complete!” is displayed, it means erasure has completed.
spdl change	Mode for erasing the total spdl rp tm time These histories are based on the time of replacement of the spindle motor. If the spindle motor has been replaced, perform this procedure and erase the history. Procedure 1. Press the [MD REC MODE] button while “REC IT” is lit when displayed as “spdl change” 2. Press the [PUSH ENTER] button when the display changes to “spdl change?” When “Complete!” is displayed, it means erasure has completed.

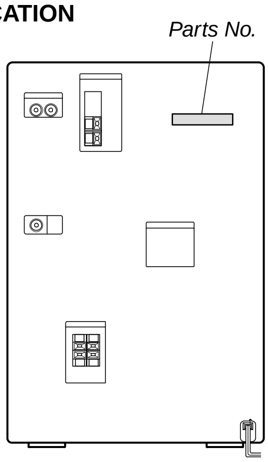
Table of Error Codes

Error Code	Description
10	Could not load
12	Loading switches combined incorrectly
20	Timed out without reading the top of PTOC
21	Could read top of PTOC, but detected error
22	Timed out without accessing UTOC
23	Timed out without reading UTOC
24	Error in UTOC
30	Could not start playback
31	Error in sector
40	Retry cause generated during normal recording
41	Retried in DRAM overflow
42	Retry occurred during TOC writing
43	Retry aborted during S.F editing
50	Other than access processing, and could not read address.
51	Focus NG occurred and overran.

TABLE OF CONTENTS

MODEL IDENTIFICATION

— BACK PANEL —



MODEL	PARTS No.
US model	4-227-556-0☐
AEP, UK, G, AED, CIS model	4-227-556-2☐
MY, SP model	4-227-556-3☐
E model	4-227-556-4☐
AR model	4-227-556-5☐
HK model	4-227-556-6☐
MX model	4-227-556-7☐
AUS model	4-227-556-8☐
KR model	4-227-556-9☐

- Abbreviation
  - G : German model
  - AED : North European model
  - MX : Mexican model
  - AR : Argentine model
  - HK : Hong Kong model
  - MY : Malaysia model
  - SP : Singapore model
  - KR : Korean model
  - AUS : Australian model

SECTION 1
SERVICE NOTES

NOTES ON HANDLING THE OPTICAL PICK-UP BLOCK OR BASE UNIT

The laser diode in the optical pick-up block may suffer electrostatic break-down because of the potential difference generated by the charged electrostatic load, etc. on clothing and the human body.
During repair, pay attention to electrostatic break-down and also use the procedure in the printed matter which is included in the repair parts.
The flexible board is easily damaged and should be handled with care.

FOR CD

NOTES ON LASER DIODE EMISSION CHECK

The laser beam on this model is concentrated so as to be focused on the disc reflective surface by the objective lens in the optical pick-up block. Therefore, when checking the laser diode emission, observe from more than 30 cm away from the objective lens.

FOR MD

NOTES ON LASER DIODE EMISSION CHECK

Never look into the laser diode emission from right above when checking it for adjustment. It is feared that you will lose your sight.

Laser component in this product is capable of emitting radiation exceeding the limit for Class 1.

CLASS 1 LASER PRODUCT
LUOKAN 1 LASERLAITE
KLASS 1 LASERAPPARAT

This appliance is classified as a CLASS 1 LASER product. The CLASS 1 LASER PRODUCT MARKING is located on the rear exterior.

CAUTION : INVISIBLE LASER RADIATION WHEN OPEN AND INTERLOCKS DEFEATED. AVOID EXPOSURE TO BEAM.
ADVARSEL : USYNLIG LASERSTRÅLING VED ÅBNING NÅR SIKKERHEDSAFBRYDERE ER UDE AF FUNKTION. UNDGÅ UDSAETTELSE FOR STRÅLING.
VORSICHT : UNSICHTBARE LASERSTRAHLUNG. WENN ABDECKUNG GEÖFFNET UND SICHEREITSVERRIEGELUNG ÜBERBRÜCKT. NICHT DEM STRAHL AUSSETZEN.
VARO! : AVATTAESSA JA SUOJALUKITUS OHITETTAESSA OLET ALTTIINA NÄKYMÄTTÖMÄLLE LASERSÄTEILYLLE. ÄLÄ KATSO SÄTEESEEN.
VARNING : OSYNLING LASERSTRÅLING NÄR DENNA DEL ÄR ÖPPNAD OCH SPÄRREN ÄR URKOPPLAD. BETRAKTA EJ STRÅLEN.
ADVERSEL : USYNLIG LASERSTRÅLING NÅR DEKSEL ÅPNES OG SIKKERHEDSLÅS BRYTES. UNNGÅ EKSPONERING FOR STRÅLEN.
VIGYAZAT! : A BURKOLAT NYITÁSAKOR LÁTHATATLAN LÉZERSUGÁRVESZÉLY! KERÜLJE A BESUGÁRZÁST!

This caution label is located inside the unit.

CAUTION
Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

Notes on chip component replacement

- Never reuse a disconnected chip component.
- Notice that the minus side of a tantalum capacitor may be damaged by heat.

Flexible Circuit Board Repairing

- Keep the temperature of soldering iron around 270˚C during repairing.
- Do not touch the soldering iron on the same conductor of the circuit board (within 3 times).
- Be careful not to apply force on the conductor when soldering or unsoldering.

SAFETY CHECK-OUT
(US model only)

After correcting the original service problem, perform the following safety checks before releasing the set to the customer:
Check the antenna terminals, metal trim, “metallized” knobs, screws, and all other exposed metal parts for AC leakage. Check leakage as described below.

LEAKAGE

The AC leakage from any exposed metal part to earth ground and from all exposed metal parts to any exposed metal part having a return to chassis, must not exceed 0.5 mA (500 microampers). Leakage current can be measured by any one of three methods.

1. A commercial leakage tester, such as the Simpson 229 or RCA WT-540A. Follow the manufacturers’ instructions to use these instruments.

2. A battery-operated AC milliammeter. The Data Precision 245 digital multimeter is suitable for this job.

3. Measuring the voltage drop across a resistor by means of a VOM or battery-operated AC voltmeter. The “limit” indication is 0.75 V, so analog meters must have an accurate low-voltage scale. The Simpson 250 and Sanwa SH-63Trd are examples of a passive VOM that is suitable. Nearly all battery operated digital multimeters that have a 2V AC range are suitable. (See Fig. A)

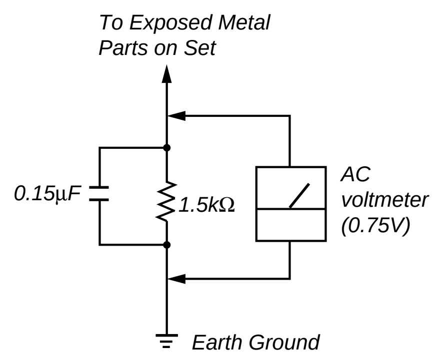
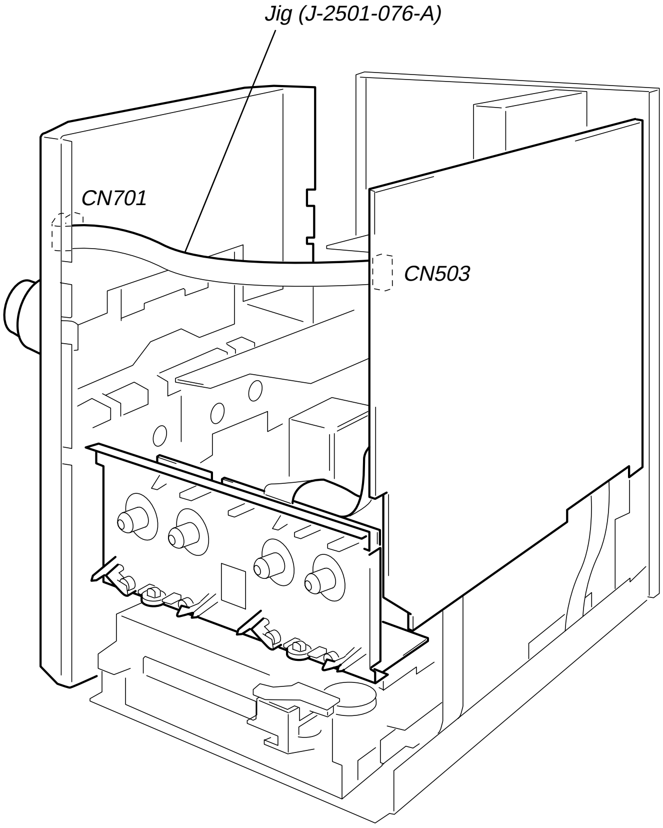


Fig. A. Using an AC voltmeter to check AC leakage.

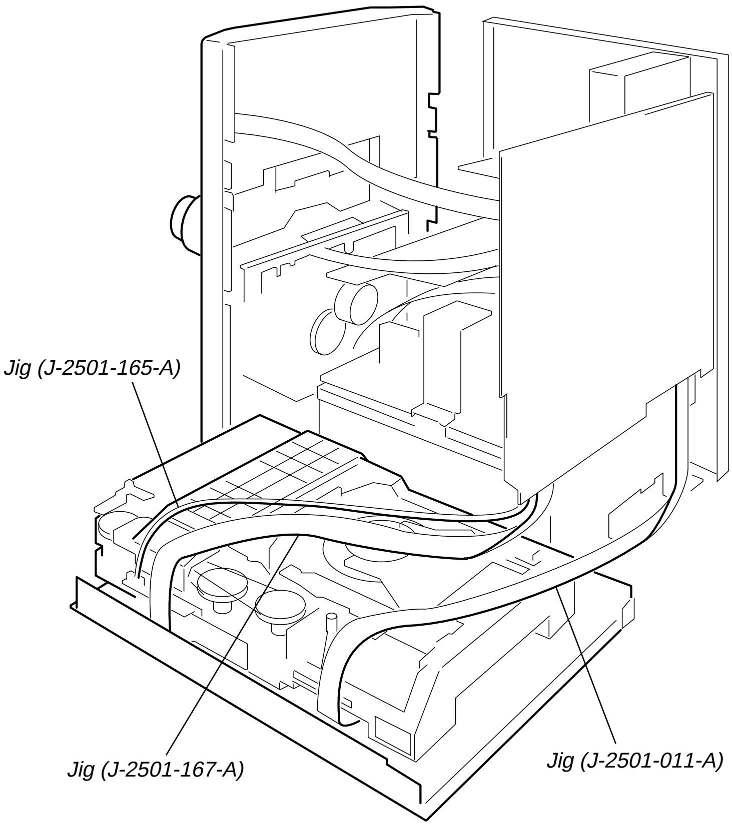
SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK ⚠ OR DOTTED LINE WITH MARK ⚠ ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

SERVICE POSITION

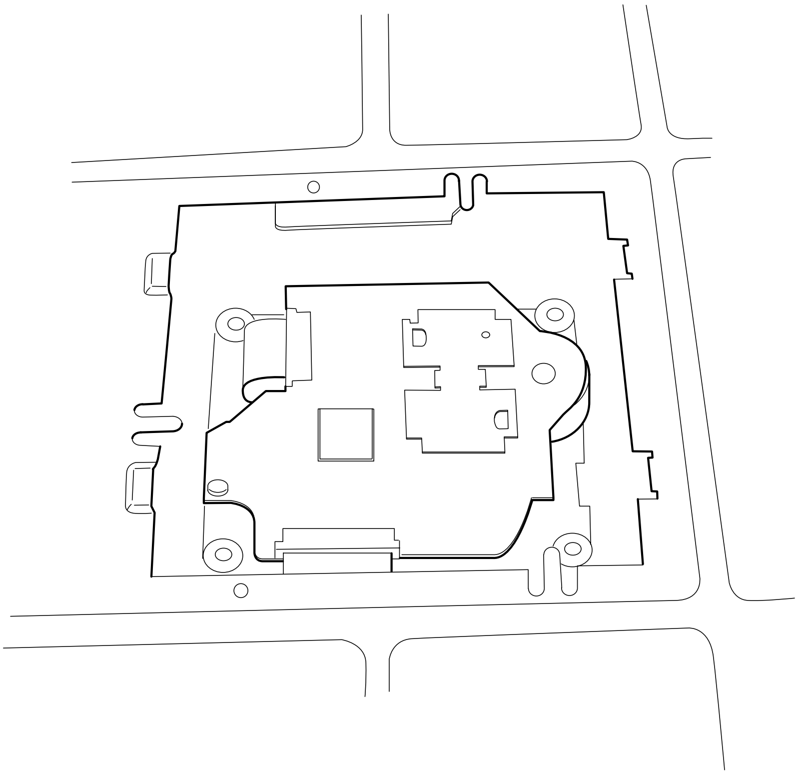


• CD MECHANISM BLOCK



• BD (CD) BOARD

To repair the BD (CD) board,remove the bottom plate.

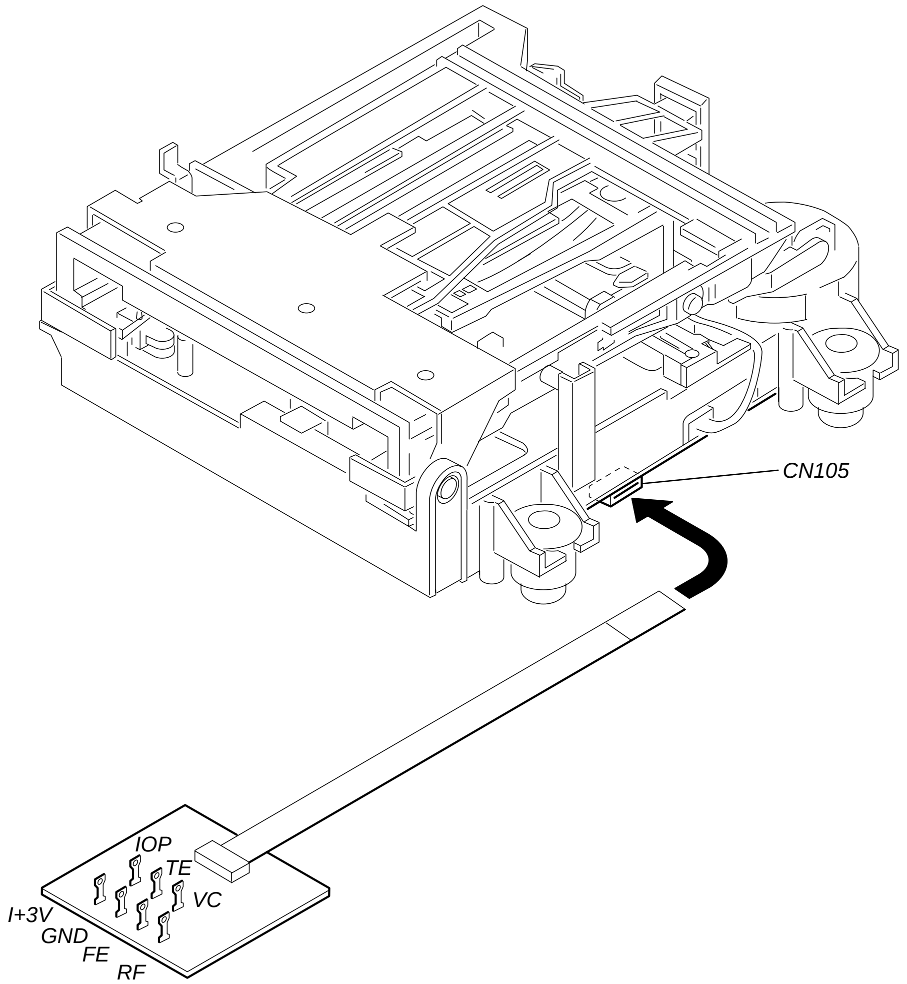


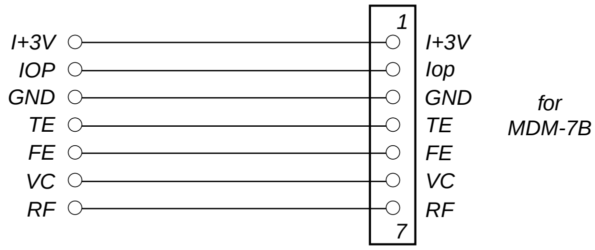
Bottom view

JIG FOR CHECKING BD (MD) BOARD WAVEFORM

The special jig (J-2501-196-A) is useful for checking the waveform of the BD (MD) board. The names of terminals and the checking items to be performed are shown as follows.

GND : Ground
I+3V : For measuring IOP (Check the deterioration of the optical pick-up laser)
IOP : For measuring IOP (Check the deterioration of the optical pick-up laser)
TE : TRK error signal (Traverse adjustment)
VC : Reference level for checking the signal
RF : RF signal (Check jitter)
FE : Focus error signal





Iop DATA RECORDING AND DISPLAY WHEN OPTICAL PICK-UP AND NON-VOLATILE MEMORY (IC195 OF BD (MD) BOARD) ARE REPLACED

The Iop value labeled on the optical pick-up can be recorded in the non-volatile memory. By recording the value, it will eliminate the need to look at the value on the label of the optical pick-up. When replacing the optical pick-up or non-volatile memory (IC195 of BD (MD) board), record the Iop value on the optical pick-up according to the following procedure.

Record Precedure:

1. In the power ON state, set the function to MD, and while pressing the [DISPLAY] and [■] buttons together, press [V-GROOVE].
2. Move the Multi stick to display "[Service]", and press the [PUSH ENTER] button.
3. Move the Multi stick to display "Iop Write" (C05), and press the [PUSH ENTER] button.
4. The display becomes "Ref=@@@.@" (@ is an arbitrary number) and the numbers which can be changed will blink.
5. Input the Iop value written on the optical pick-up.
   To select the number : Move the Multi stick.
   To select the digit : Press the [MD REC MODE] button while REC IT is lit.
6. When the [PUSH ENTER] button is pressed, the display becomes "Measu=@@@.@" (@ is an arbitrary number).
7. As the adjustment results are recorded for the 6 value. Leave it as it is and press the [PUSH ENTER] button.
8. "Complete!" will be displayed momentarily. The value will be recorded in the non-volatile memory and the display will become "Iop Write" (C05).

Display Precedure:

1. In the power ON state, set the function to MD, and while pressing the [DISPLAY] and [■] buttons together, press [V-GROOVE].
2. Move the Multi stick to display "[Service]", and press the [PUSH ENTER] button.
3. Move the Multi stick to display "Iop Read" (C26).
4. "@@.@/##.#" is displayed and the recorded contents are displayed.
   @@.@ : indicates the Iop value labeled on the optical pick-up.
   ##.# : indicates the Iop value after adjustment
5. To end, press the [NAME EDIT/CHARACTER] button while REC IT is lit, or press the [MD REC MODE] button to display "Iop Read" (C26).

CHECKS PRIOR TO PARTS REPLACEMENT AND ADJUSTMENTS

Before performing repairs, perform the following checks to determine the faulty locations up to a certain extent.
Details of the procedures are described in “6 Electrical Adjustments”.

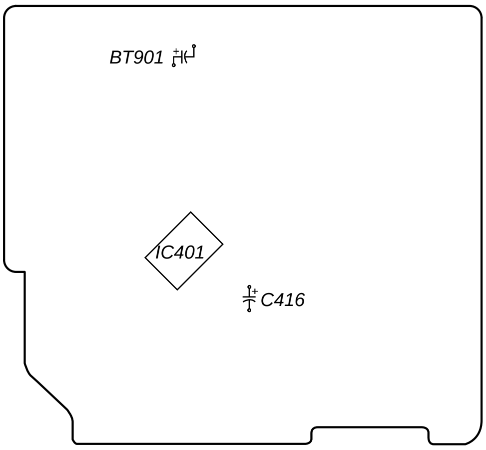
- 6-6-2. Laser power check (see page 43)
- 6-6-3. Iop Compare (see page 43)
- 6-6-4. Auto Check (see page 44)

Note:
The criteria for determination above is intended merely to determine if satisfactory or not, and does not serve as the specified value for adjustments.
When performing adjustments, use the specified values for adjustments.

FORCED RESET

The system microprocessor can be reset in the following procedure.
Use these procedure when the unit cannot be operated normally due to the overrunning of the microprocessor, etc.
Procedure :
1. Disconnect the AC outlet.
2. Momentary short between BT901 pin ⊕ and BT901 pin ⊖ by lead wire.
3. Momentary short between C416 pin ⊕ and C416 pin ⊖ by lead wire.

[MAIN BOARD]



RETRY CAUSE DISPLAY MODE

- In this test mode, the causes for retry of the unit during recording can be displayed on the fluorescent indicator tube. During playback, the "track mode" for obtaining track information will be set.
  This is useful for locating the faulty part of the unit.
- The following will be displayed :
  During recording and stop : Retry cause, number of retries, and number of retry errors.
  During playback : Information such as type of disc played, part played, copyright.
  These are displayed in hexadecimal.

Procedure:

1. Press the ■ button and DISPLAY button, CINEMA SPACE button.
2. When the mode is set, "RTs 00c 00e 000" is displayed.
3. Press the MD REC button to start recording. Then press the MD ▶II button and start recording.
4. To check the "track mode", press the MD ▶II button to start play.
5. To exit the test mode, press the I/⏻ button, and turn OFF the power. When "TOC" disappears, disconnect the power plug from the outlet. If the test mode cannot be exited, refer to "Forced Reset" on page 12 .

Fig. 1 Reading the Test Mode Display
(During recording and stop)

RTs@@c##c***

Fluorescent display tube display

@@ : Cause of retry
: Number of retries
*** : Number of retry errors

(During playback)

@@####**$$

Fluorescent display tube display

@@ : Parts No. (name of area named on TOC)
: Cluster } Address (Physical address on disc)
** : Sector }
$$: Track mode (Track information such as copyright information of each part)

Fig. 2 Reading the Test Mode Display

Reading the Retry Cause Display

	Higher Bits				Lower Bits				Hexa-decimal	Cause of Retry	Occurring conditions
Hexadecimal	8	4	2	1	8	4	2	1			
Bit	b7	b6	b5	b4	b3	b2	b1	b0			
Binary	0	0	0	0	0	0	0	1	01	shock	When track jump (shock) is detected
	0	0	0	0	0	0	1	0	02	ader5	When ADER was counted more than five times continuously
	0	0	0	0	0	1	0	0	04	Discontinuous address	When ADIP address is not continuous
	0	0	0	0	1	0	0	0	08	DIN unlock	When DIN unlock is detected
	0	0	0	1	0	0	0	0	10	FCS incorrect	When not in focus
	0	0	1	0	0	0	0	0	20	IVR rec error	When ABCD signal level exceeds the specified range
	0	1	0	0	0	0	0	0	40	CLV unlock	When CLV is unlocked
	1	0	0	0	0	0	0	0	80	Access fault	When access operation is not performed normally

Reading the Display:
Convert the hexadecimal display into binary display. If more than two causes, they will be added.

Example

When 42 is displayed:
Higher bit : 4 = 0100 → b6
Lower bit : 2 = 0010 → b1
In this case, the retry cause is combined of "CLV unlock" and "ader5".

When A2 is displayed:
Higher bit : A = 1010 → b7+b5
Lower bit : 2 = 0010 → b2
The retry cause in this case is combined of "access fault", "IVR rec error", and "ader5".

Reading the Track Mode Display

	Higher Bits				Lower Bits				Hexa-decimal	Details	
Hexadecimal	8	4	2	1	8	4	2	1			
Bit	b7	b6	b5	b4	b3	b2	b1	b0		When 0	When 1
Binary	0	0	0	0	0	0	0	1	01	Emphasis OFF	Emphasis ON
	0	0	0	0	0	0	1	0	02	Monaural	Stereo
	0	0	0	0	0	1	0	0	04	This is 2-bit display. Normally 01.	
	0	0	0	0	1	0	0	0	08	01:Normal audio. Others:Invalid	
	0	0	0	1	0	0	0	0	10	Audio (Normal)	Invalid
	0	0	1	0	0	0	0	0	20	Original	Digital copy
	0	1	0	0	0	0	0	0	40	Copyright	No copyright
	1	0	0	0	0	0	0	0	80	Write prohibited	Write allowed

Reading the Display:
Convert the hexadecimal display into binary display. If more than two causes, they will be added.

Example When 84 is displayed:

Higher bit : 8 = 1000 → b7
Lower bit : 4 = 0100 → b2
In this case, as b2 and b7 are 1 and others are 0, it can be determined that the retry cause is combined of “emphasis OFF”, “monaural”, “original”, “copyright exists”, and “write allowed”.

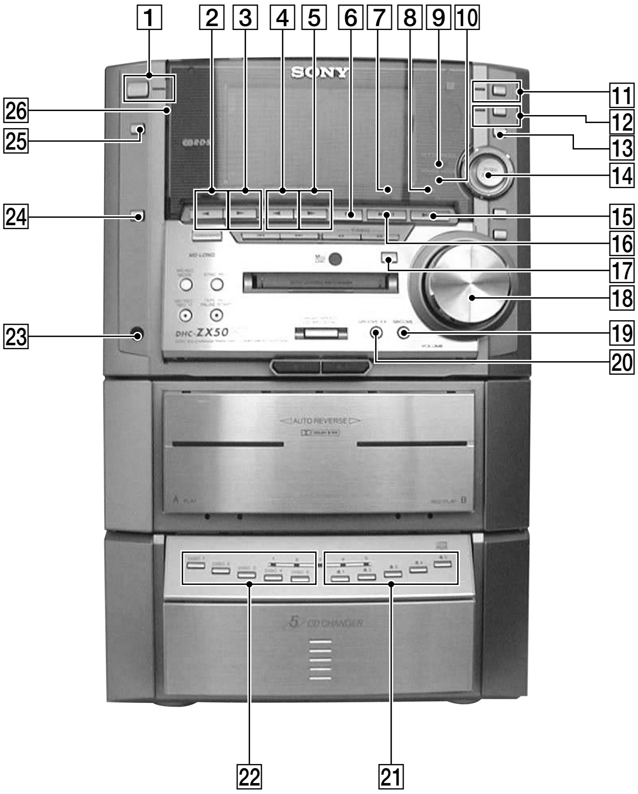
Example When 07 is displayed:

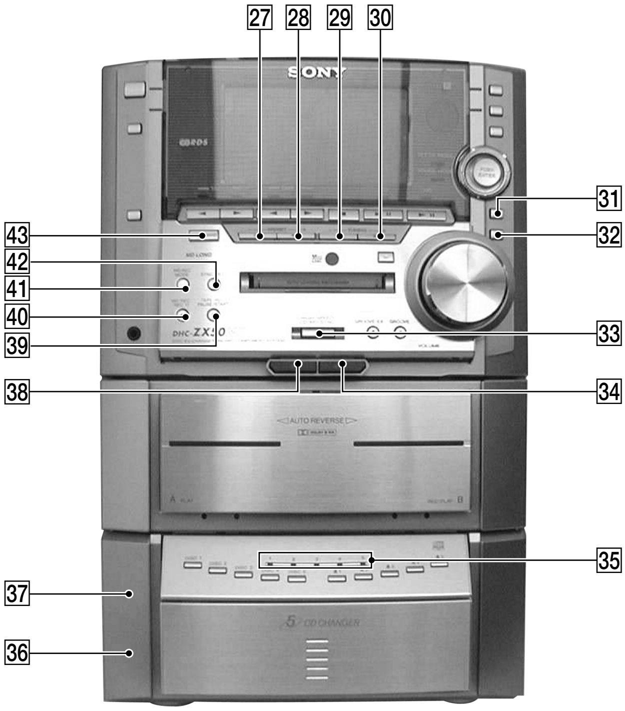
Higher bit : 0 = 1000 → All 0
Lower bit : 7 = 0111 → b0+b1+b2
In this case, as b0, b1, and b2 are 1 and others are 0, it can be determined that the retry cause is combined of “emphasis ON”, “stereo”, “original”, “copyright exists”, and “write prohibited”.

Hexadecimal → Binary Conversion Table

Hexadecimal	Binary	Hexadecimal	Binary
0	0000	8	1000
1	0001	9	1001
2	0010	A	1010
3	0011	B	1011
4	0100	C	1100
5	0101	D	1101
6	0110	E	1110
7	0111	F	1111

SECTION 2
GENERAL





1 I/⏻ button and indicator
2 TAPE A ◁ button and indicator
3 TAPE A ▷ button and indicator
4 TAPE B ◁ button and indicator
5 TAPE B ▷ button and indicator
6 ■ button
7 CD indicator
8 MD indicator
9 SET UP MODE indicator
10 SOUND MODE indicator
11 CINEMA SPACE button and indicator
12 V-GROOVE button and indicator
13 MODE SELECT button
14 PUSH ENTER button/Multi stick
15 MD ►II button
16 CD ►II button
17 MD ⏏ button
18 VOLUME knob
19 GROOVE button
20 GROOVE EX button
21 ⏏ 1 to ⏏ 5 buttons
22 DISC 1 to DISC 5 buttons
23 PHONES jack
24 FUNCTION button
25 DISPLAY button
26 TIMER SELECT indicator
27 I◄◄ button
28 ►►I button
29 ◄◄ button
30 ►► button
31 NAME EDIT/CHARACTER button
32 CLEAR button
33 HIGH SPEED CD-MD SYNC button
34 TAPE B ⏏ button
35 DISC 1 to DISC 5 indicator
36 MIC jack (HK,MY,SP,KR model)
37 MIC VOL knob (HK,MY,SP,KR model)
38 TAPE A ⏏ button
39 TAPE REC PAUSE/START button
40 MD REC button
41 MD REC MODE button
42 SYNC REC button
43 TUNER/BAND button

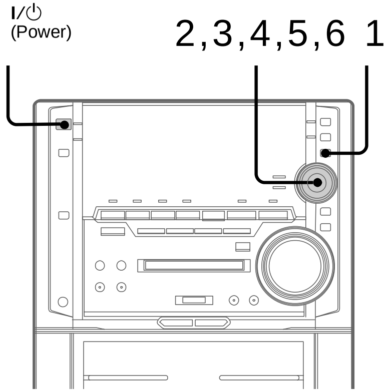
This section is extracted from instruction manual.

Step 2: Setting the time

You must set the time before using the timer functions.

The clock is on a 24-hour system for the European model, and on a 12-hour system for other models.

For illustration purposes, the 12-hour system model is used.



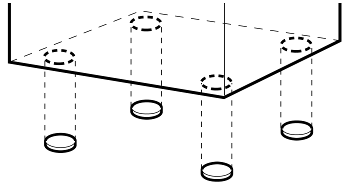
1 Press MODE SELECT when the system is turned off.
"Clock Set ?" appears.
When the system is in the Power Saving Mode, "Clock Set ?" will not appear. Either set Power Saving Mode off, or follow the steps on the following page ("To change the time") after turning the power on.

2 Press PUSH ENTER.
The hour indication flashes.

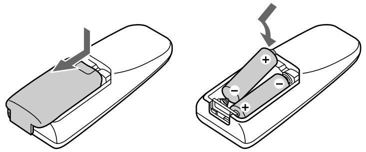


To attach the front speaker pads

Attach the supplied front speaker pads to the bottom of the speakers to stabilize the speakers and prevent them from slipping.



Inserting two size AA (R6) batteries into the remote



Tip

With normal use, the batteries should last for about six months. When the remote no longer operates the system, replace both batteries with new ones.

Note

If you do not use the remote for a long period of time, remove the batteries to avoid possible damage from battery leakage.

When carrying this system

Do the following to protect the CD mechanism. Make sure that all discs are removed from the unit.

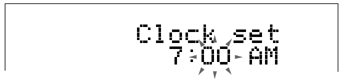
1 Press FUNCTION repeatedly until "CD" appears in the display.
2 Hold down V-GROOVE and press I/⏻ so that "LOCK" appears in the display.

continued

Step 2: Setting the time (continued)

3 Move the multi stick toward ▲ or ▼ repeatedly to set the hour.

4 Move the multi stick toward ▶.
The minute indication flashes.



5 Move the multi stick toward ▲ or ▼ repeatedly to set the minute.

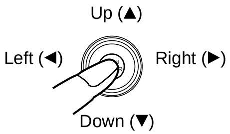
6 Press PUSH ENTER.

To cancel the menu operation

Press MODE SELECT.

Tips

- Refer to the illustration to use the multi stick. Place your finger on the center of the multi stick and move in the direction you want (up/down or left/right shown ▲/▼ or ◀/▶ in this manual).



- If you've made a mistake, start over from step 1.

To change the time

The previous explanation shows you how to set the time while the power is off. To change the time while the power is on, do the following:

1 Press MODE SELECT repeatedly to select "Set Up Mode", then press PUSH ENTER.
2 Move the multi stick toward ◀ or ▶ repeatedly to select "Timer Set Up ?", then press PUSH ENTER.
3 Move the multi stick toward ◀ or ▶ repeatedly to select "Clock Set ?", then press PUSH ENTER.
4 Perform steps 3 through 6 on the left.

Note

The clock settings are canceled when you disconnect the power cord or if a power failure occurs.

Items in “Sound Mode” and “Set Up Mode”

The numbers in parenthesis denotes the page number for the item.

- Sound Mode
  - Effect On→Off/Off→On (70)
  - File Select (70, 74)
  - P File Memory (74)
  - Equalizer Control (73)
  - Cinema Space* (72)
  - Mode End

- **To cancel the menu operation, press MODE SELECT.**
- The items with asterisk (*) cannot be selected depending on the situation.
- The items in double box are not in the menu. In order to select the doublebox items, press the corresponding buttons on the front panel or on the remote.
- Select “Mode End” to finish the menu operation.

- Set Up Mode
  - CD Set Up ?*
    - Repeat Set Up ? (26)
    - Play Mode Set Up ? (27, 30)
    - CD Edit Start ?[1] (68)
    - Program Set ?[2] (28, 38, 66)
    - PGM Check Clear* (29, 67)
    - Mode End
  - MD Set Up ?*
    - Repeat Set Up ? (33)
    - Play Mode Set Up ? (34, 36)
    - Program Set ?[3] (34)
    - PGM Check Clear* (35, 36)
    - MD Edit ? (41, 42, 44–63)
    - Mode End
  - TUNER Set Up ?*
    - Stereo Mono ?* (21)
    - PTY Select ?* (76)
    - TUNER Memory ? (9)
    - TUNER Erase ?* (10)
    - TUNER Name?* (78)
    - Mode End

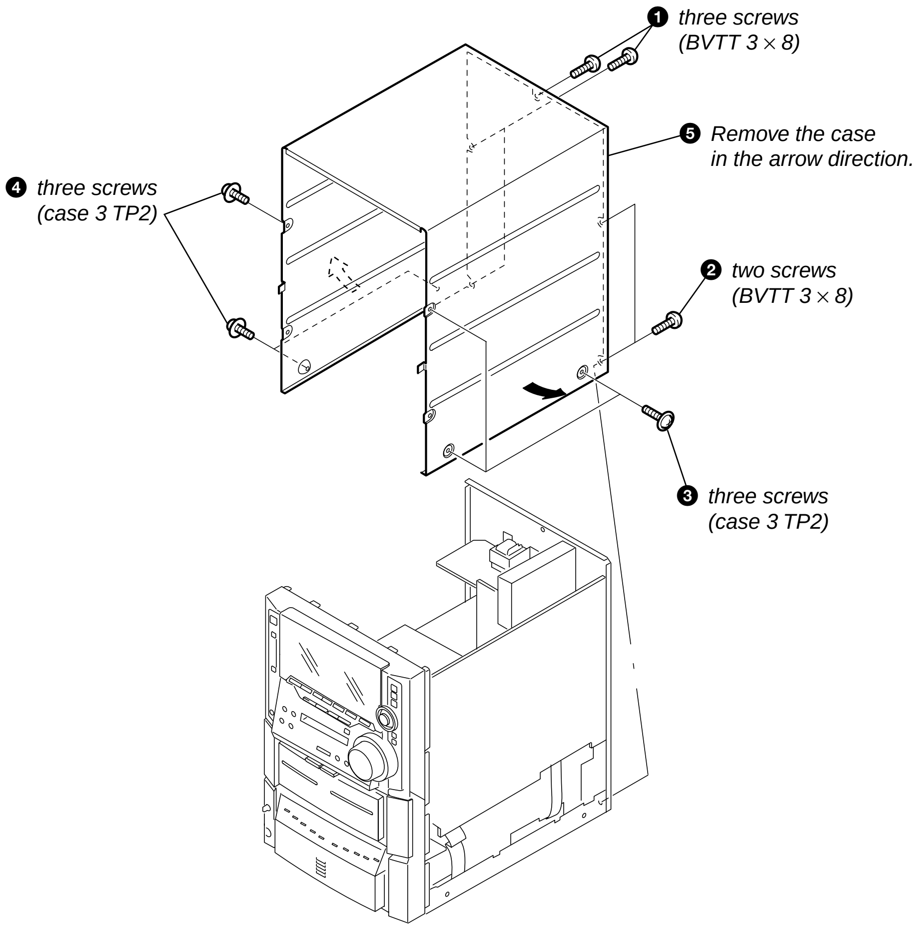
- Set Up Mode
  - TAPE Set Up ?
    - Direction Set Up ? (18, 23, 64, 66)
    - DOLBY NR Set Up ? (16, 19, 24, 65)
    - Mode End
  - Timer Set Up ?
    - Clock Set ? (8)
    - Timer Set ?* (80, 82)
    - Timer Select ?* (80, 82)
    - Mode End
  - Display Set Up ?
    - Spectrum Set Up ? (71)
    - Dimmer Set Up ? (71)
    - Mode End
  - Mode End

[1] Cannot be selected during CD playback.
[2] Cannot be selected during CD program playback.
[3] Cannot be selected during MD playback.

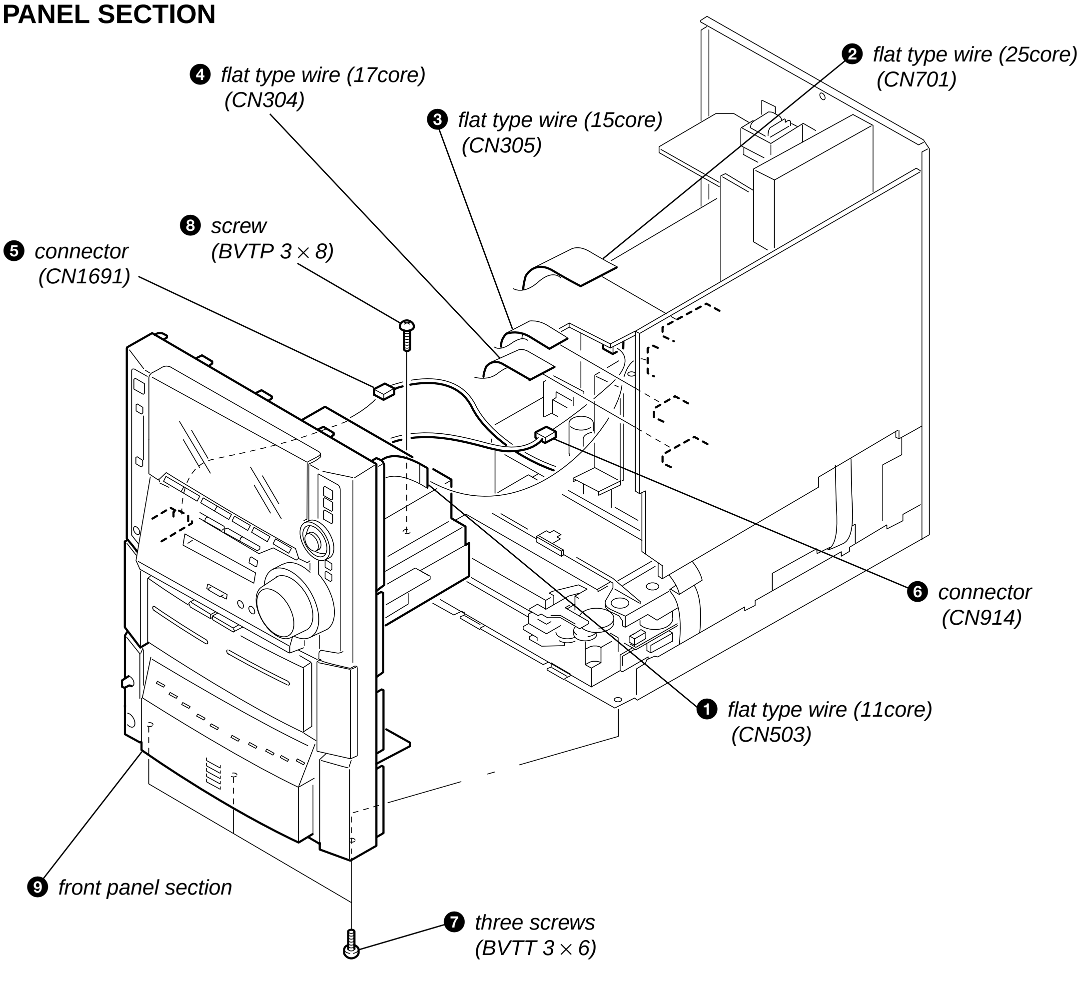
SECTION 3
DISASSEMBLY

Note : Follow the disassembly procedure in the numerical order given.

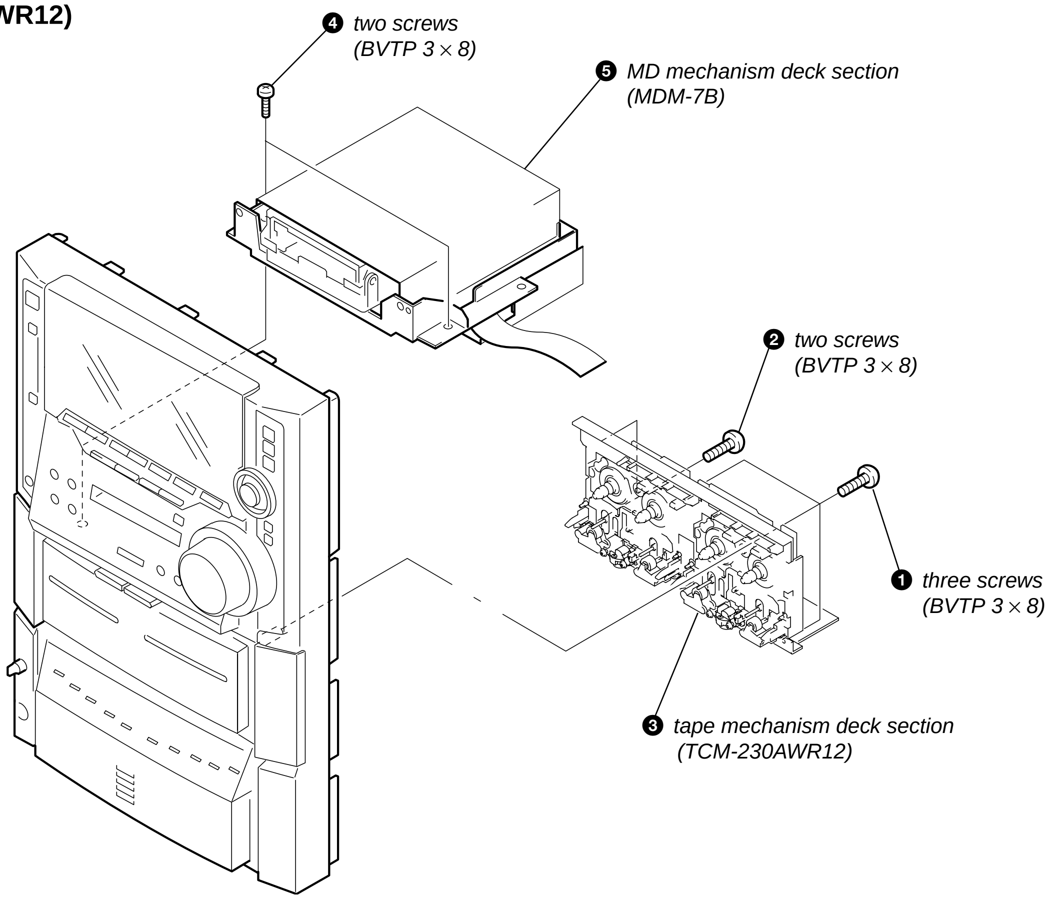
3-1. CASE



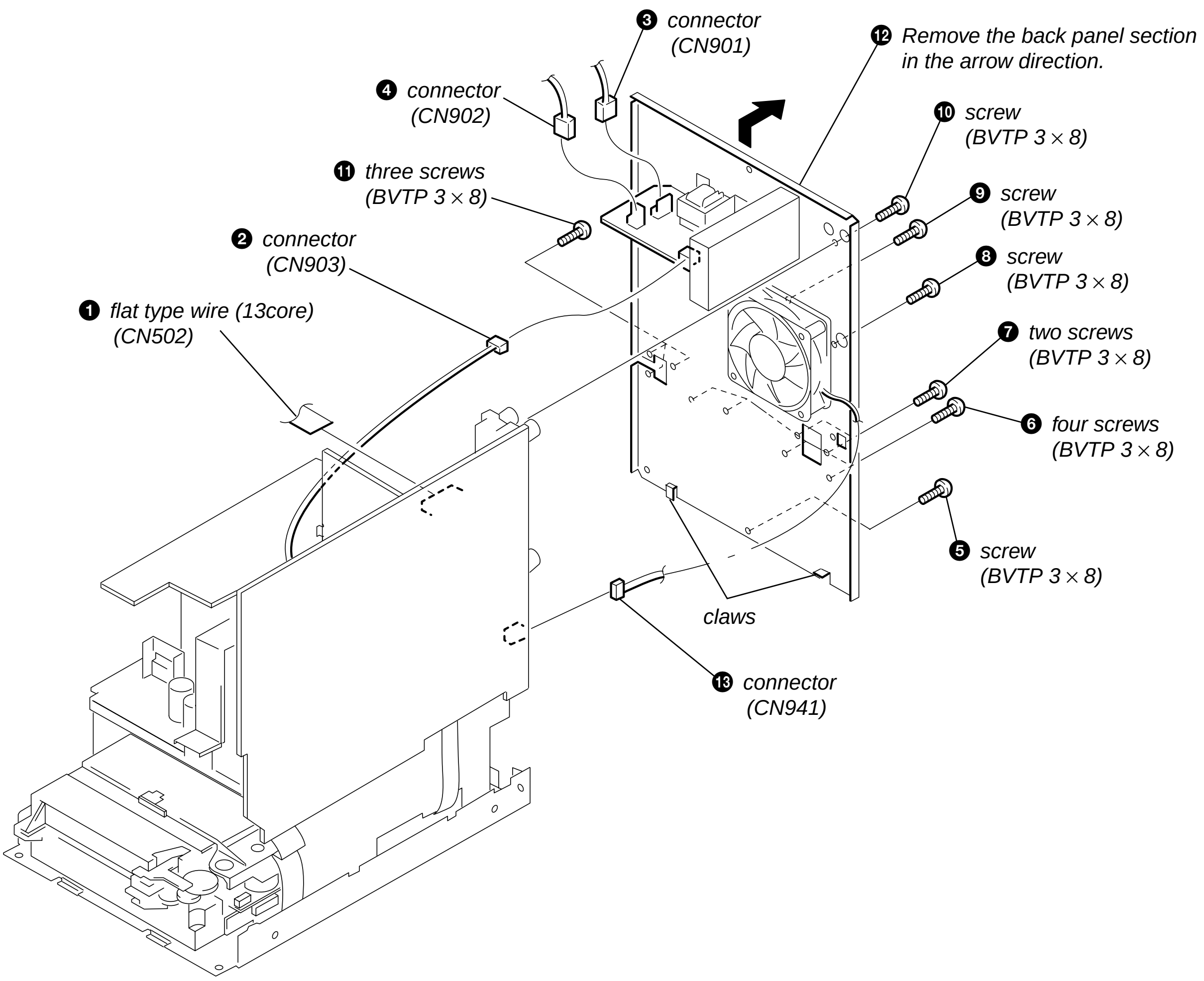
3-2. FRONT PANEL SECTION



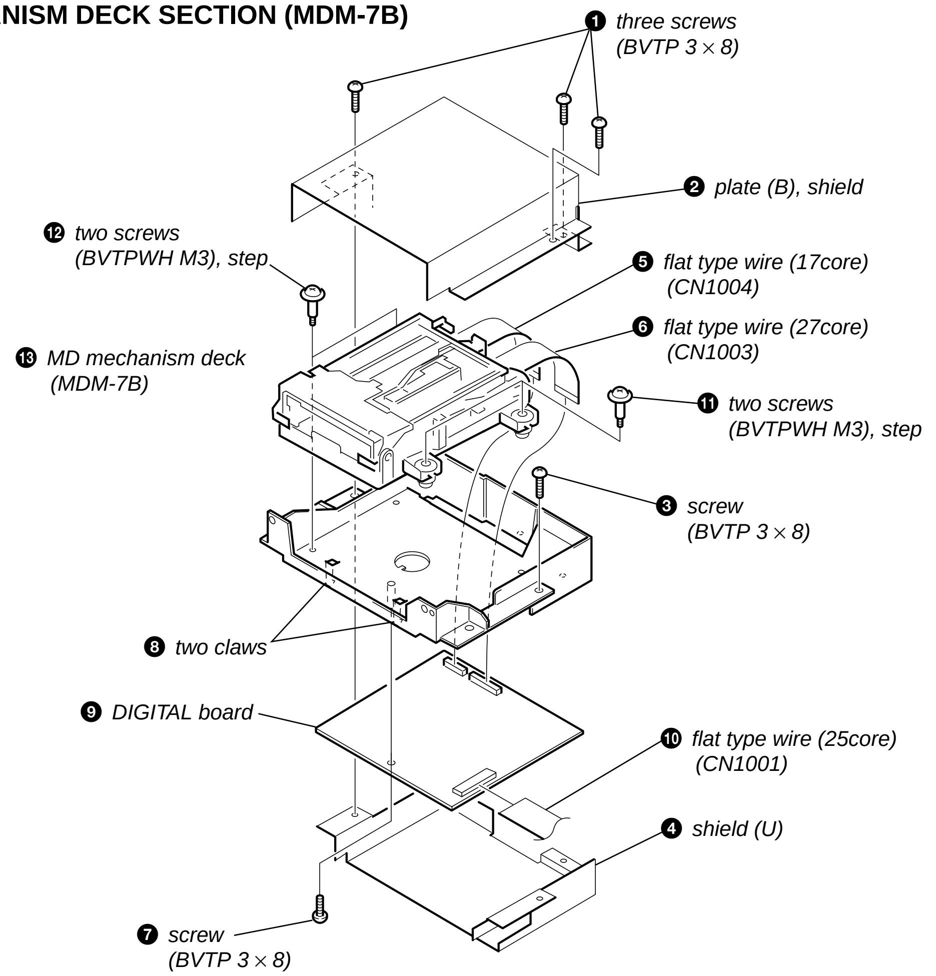
3-3. MD MECHANISM SETION
TAPE MECHANISM DECK SECTION
(TCM-230AWR12)



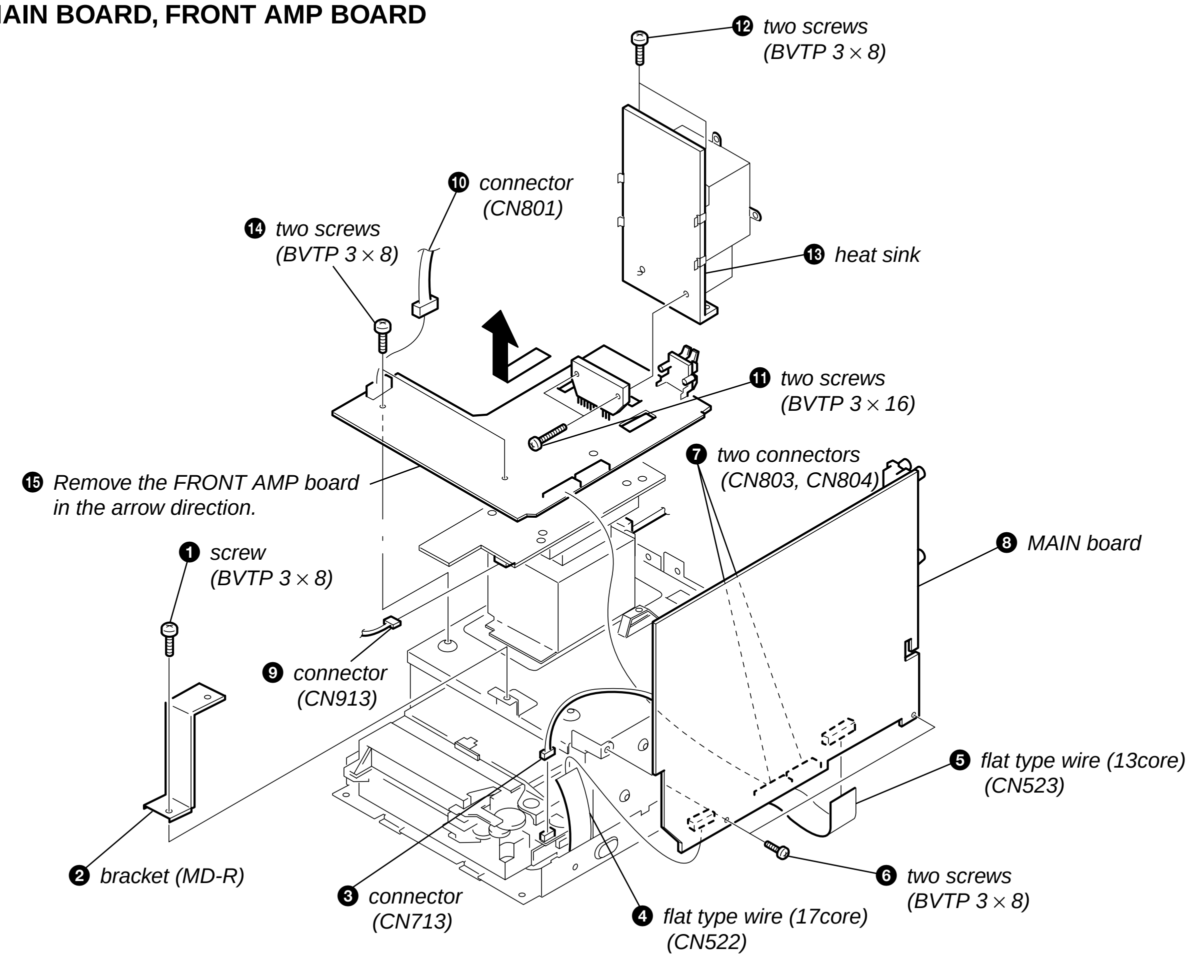
3-4. BACK PANEL SECTION



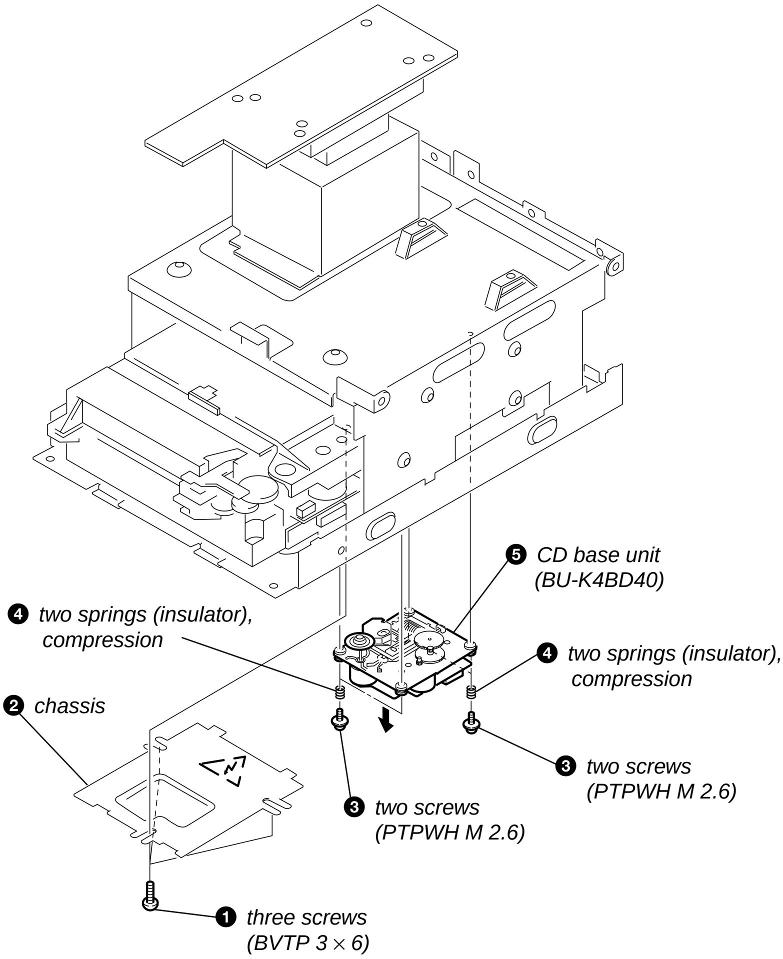
3-5. MD MECHANISM DECK SECTION (MDM-7B)



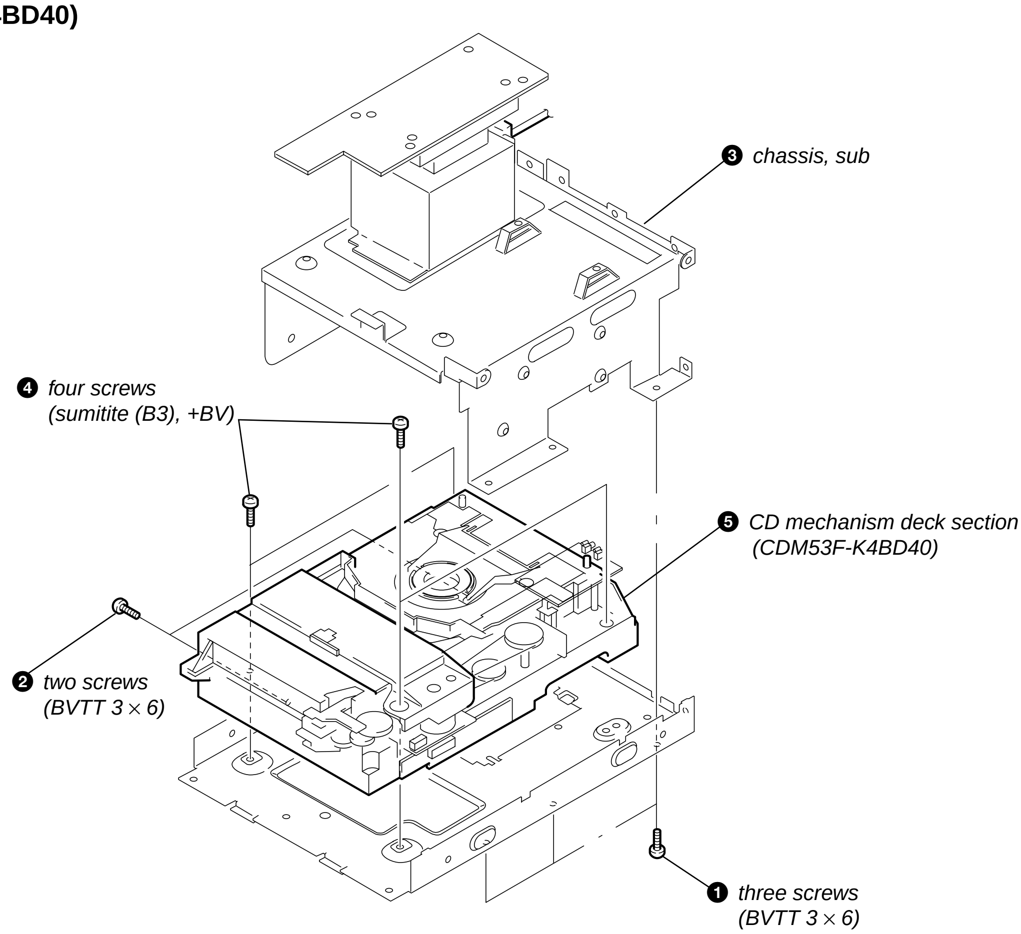
3-6. MAIN BOARD, FRONT AMP BOARD



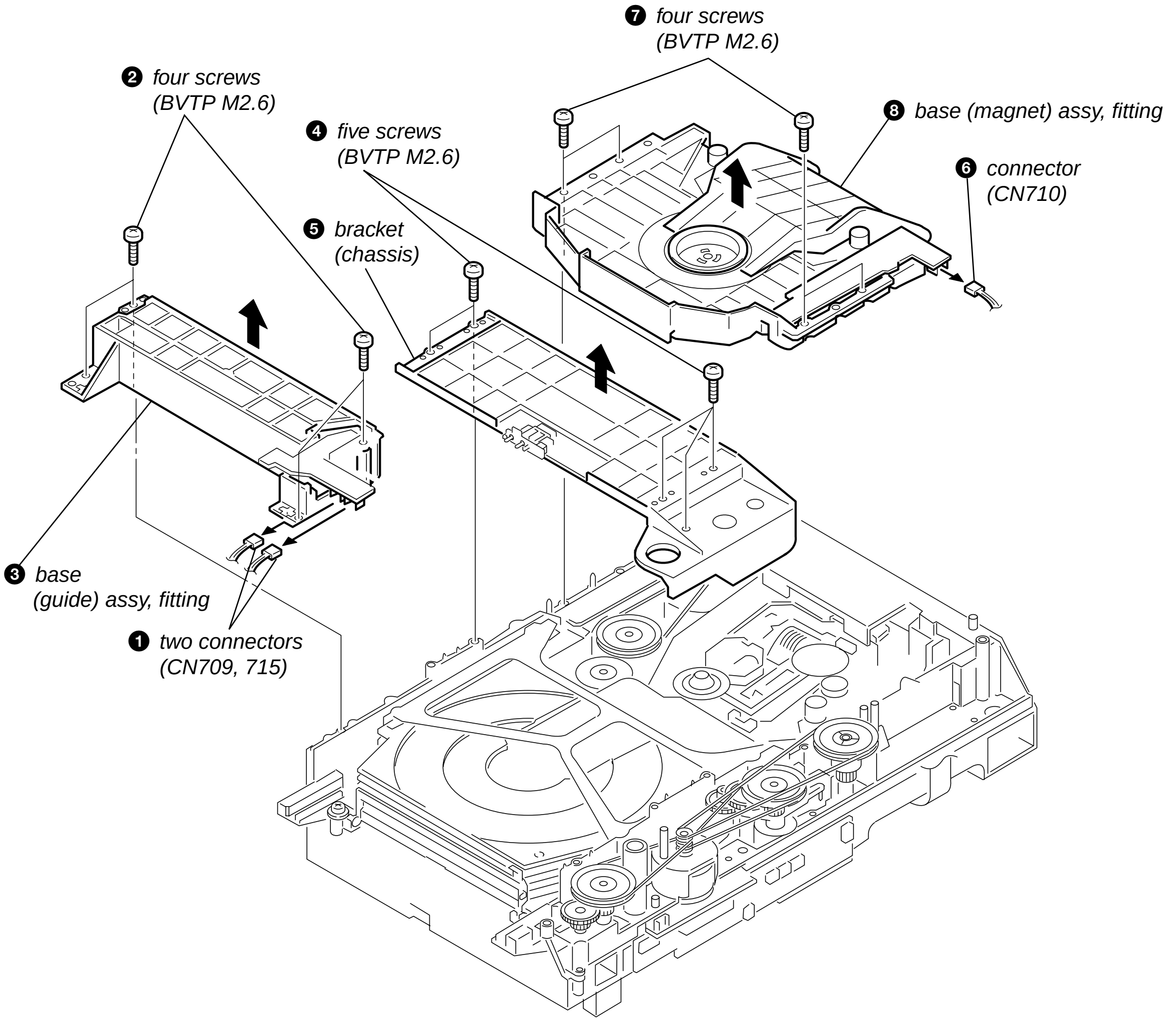
3-7. CD BASE UNIT (BU-K4BD40)



3-8. CD MECHANISM DECK SECTION (CDM53F-K4BD40)

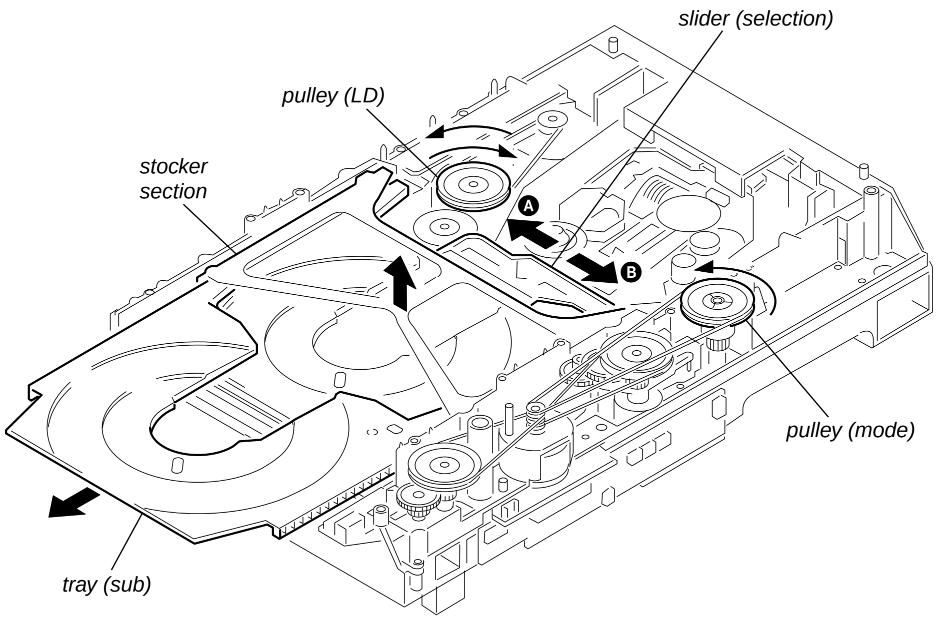


3-9. FITTING BASE (GUIDE) ASSY, BRACKET (CHASSIS) AND FITTING BASE (MAGNET) ASSY



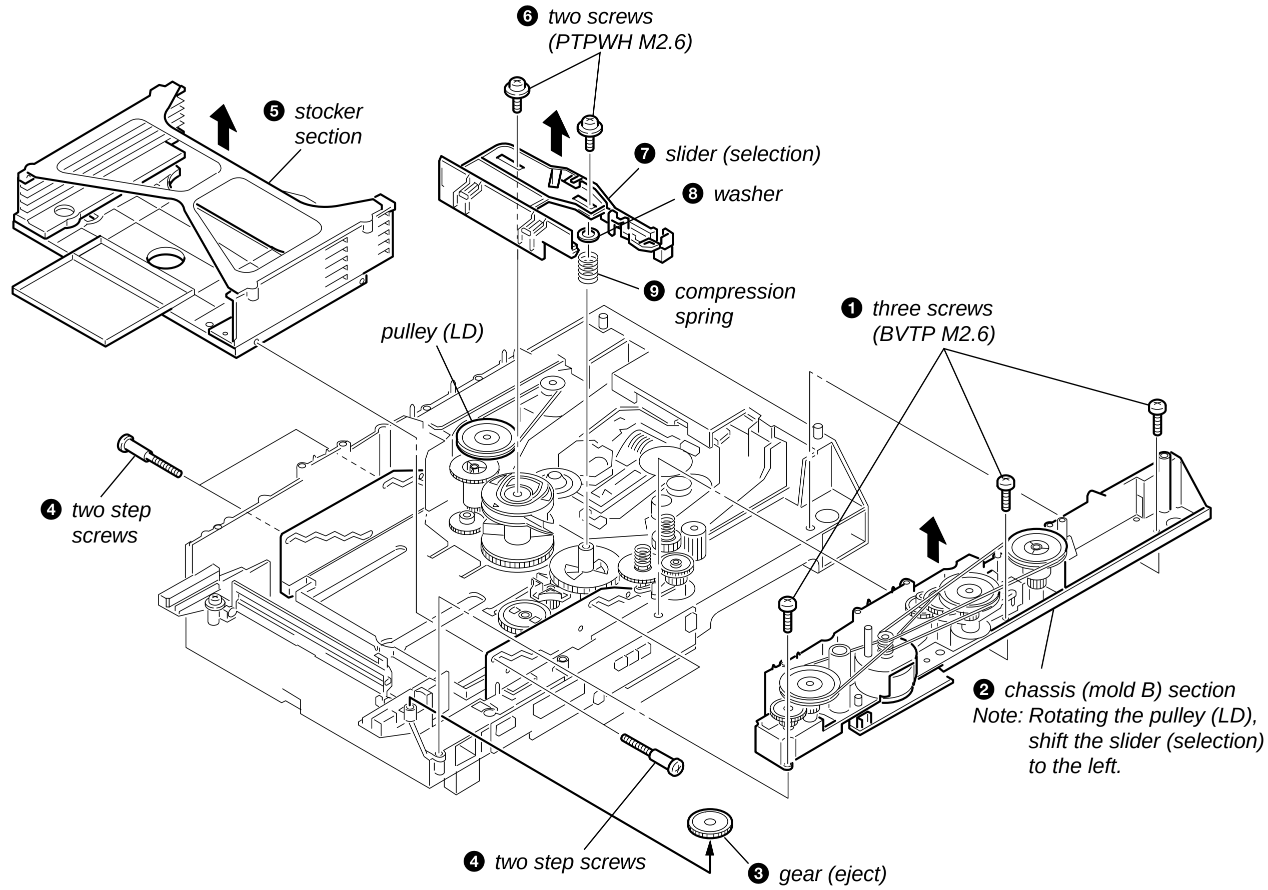
3-10. TRAY (SUB)

❶ *Rotating the pulley (LD), shift the slider (selection) in the arrow* Ⓐ *direction.*
❷ *Rotating the pulley (mode) in the arrow direction, adjust the tray (sub) to be removed.*
❸ *Rotating the pulley (LD), shift the slider (selection) in the arrow* Ⓑ *direction.*
❹ *Rotating the pulley (mode) in the arrow direction, remove the tray (sub) to be removed.*

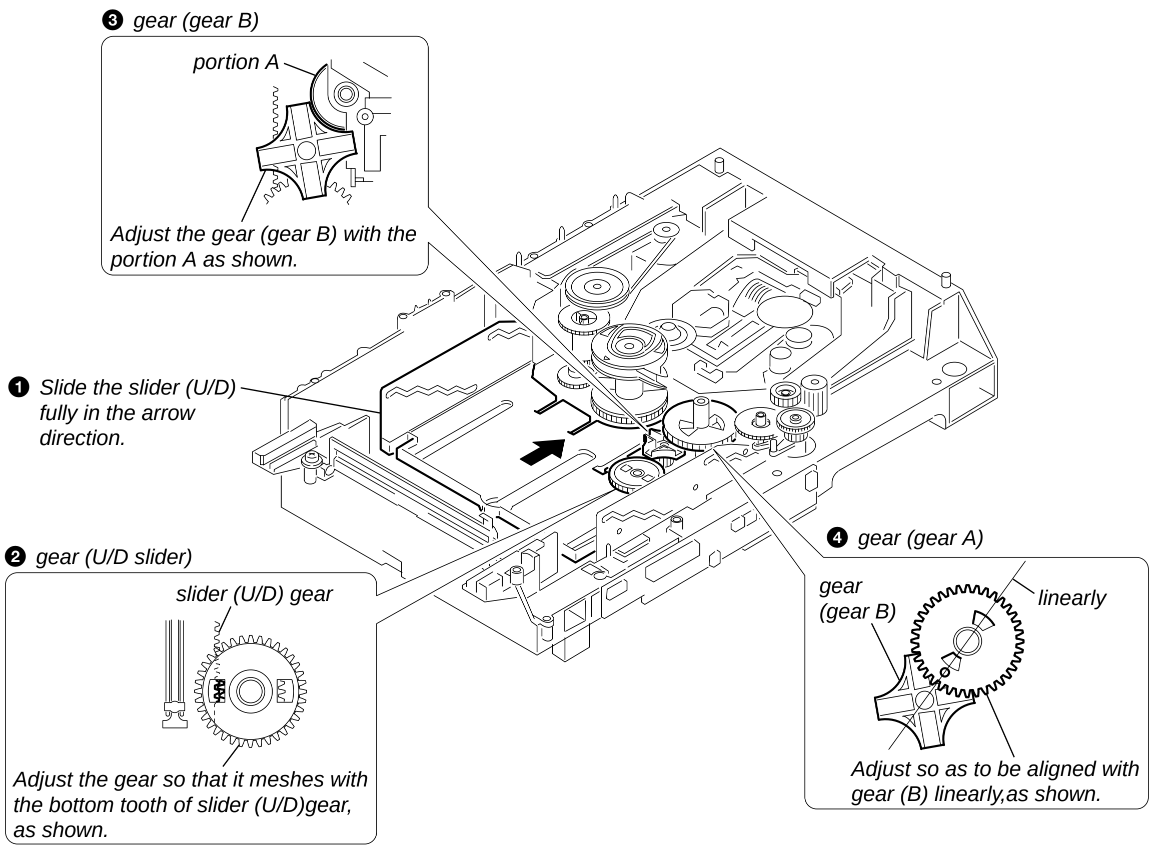


3-11. CHASSIS (MOLD B) SECTION, STOCKER SECTION AND SLIDER (SELECTION)

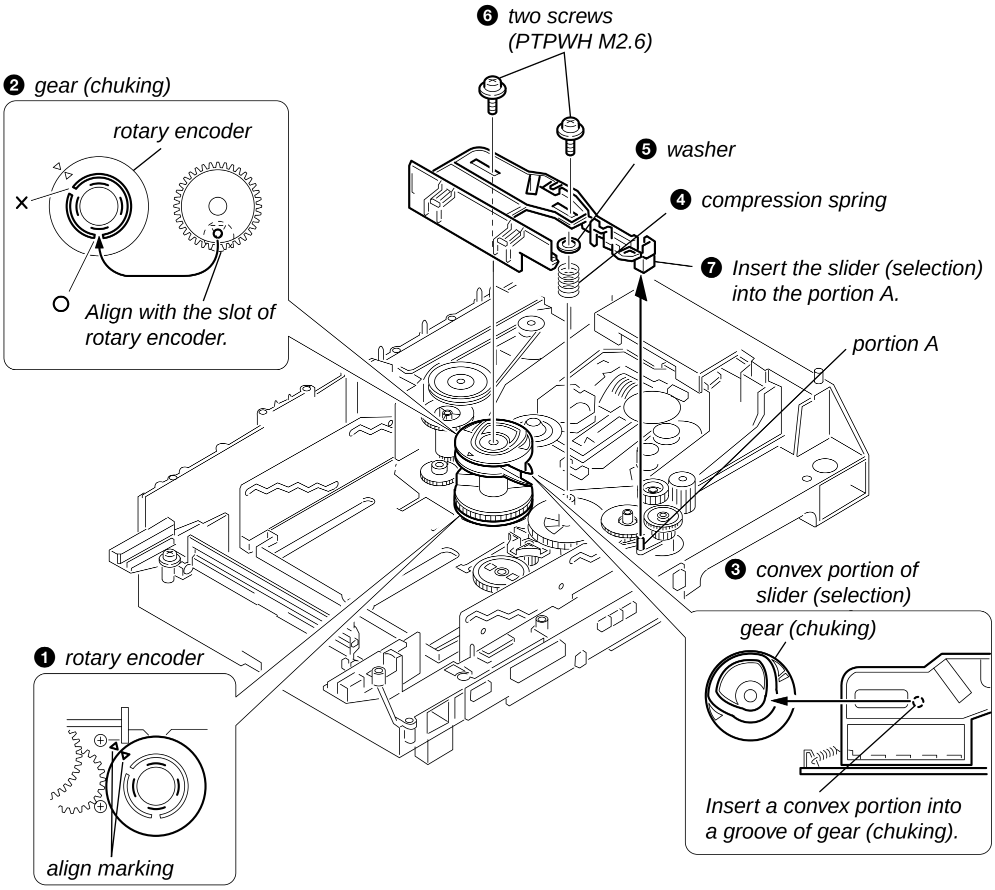
Note : In mounting the parts, refer to page 24 and 25.



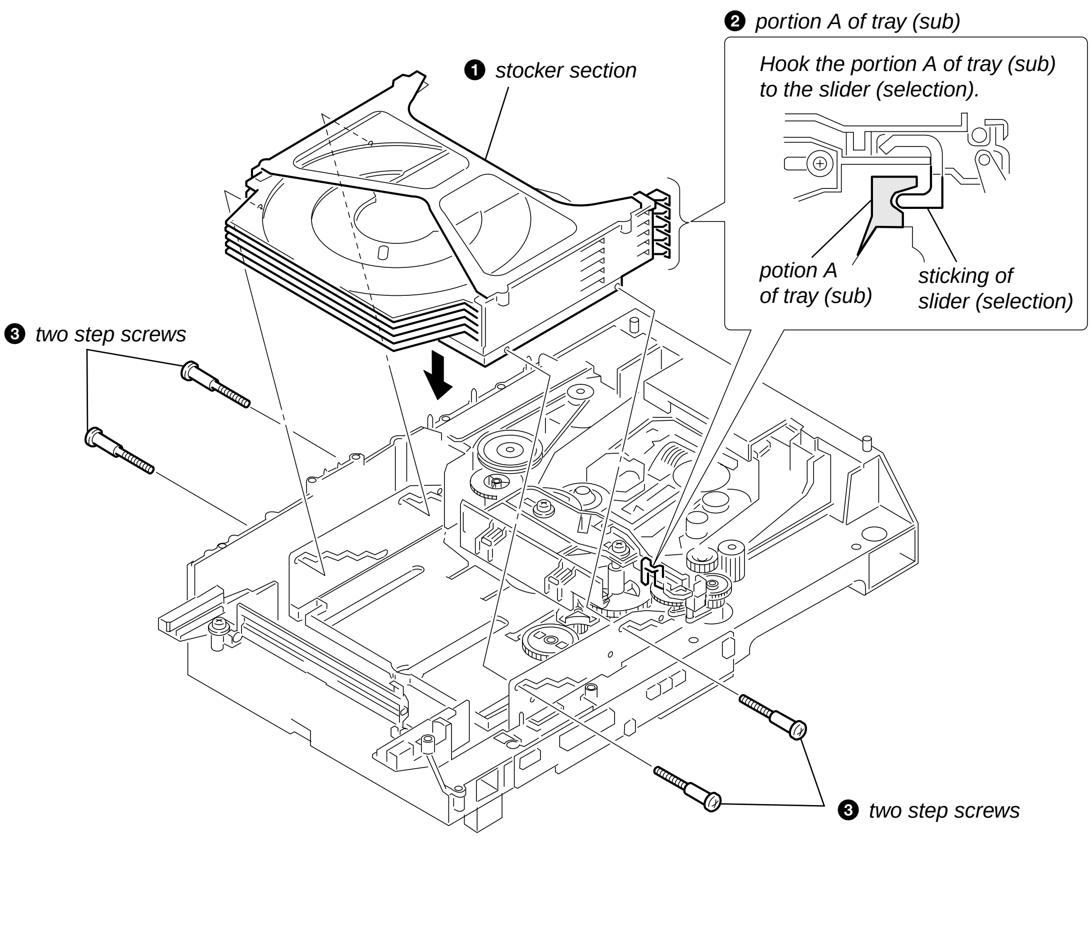
3-12. GEARS INSTALLATION



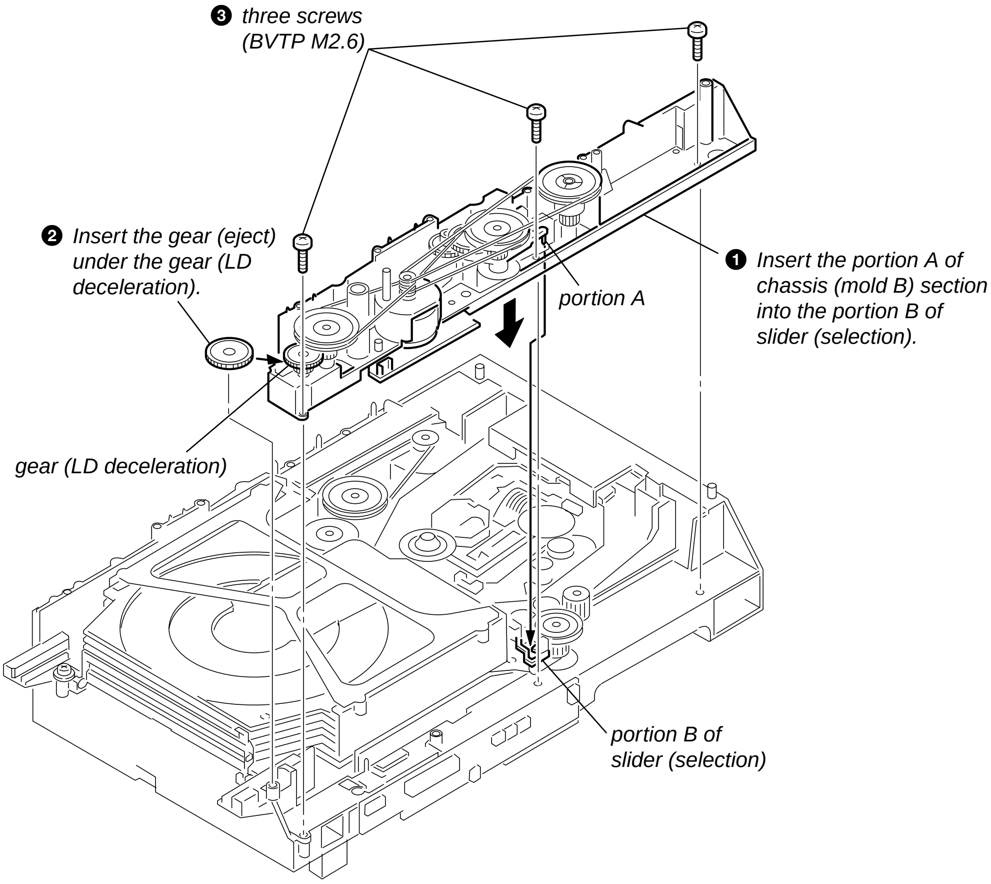
3-13. SLIDER (SELECTION) INSTALLATION



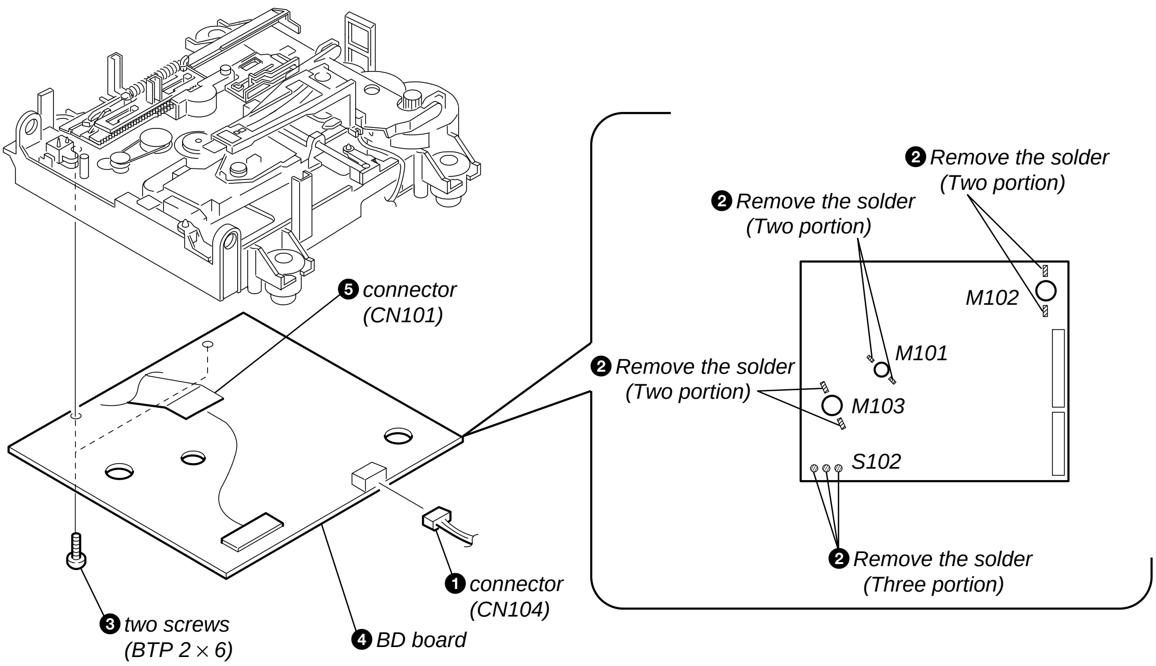
3-14. STOCKER SECTION INSTALLATION



3-15. CHASSIS (MOLD B) SECTION INSTALLATION



3-16. BD (MD) BOARD



SECTION 4
TEST MODE

[MC Cold Reset]

- The cold reset clears all data including preset data stored in the RAM to initial conditions. Execute this mode when returning the set to the customer.

Procedure:

1. Press three buttons [■], [DISPLAY], and [DISC 5] simultaneously.
2. The fluorescent indicator tube displays "COLD RESET" and the set is reset.

[CD Ship Mode]

- This mode moves the optical pick-up to the position durable to vibration. Use this mode when returning the set to the customer after repair.

Procedure:

1. Press [I/⏻] button to turn the set ON.
2. Press [V-GROOVE] button and [I/⏻] button simultaneously.
3. After the "STANDBY" display blinks six times, a message "LOCK" is displayed on the fluorescent indicator tube, and the CD ship mode is set.

[MC Hot Reset]

- This mode resets the set with the preset data kept stored in the memory. The hot reset mode functions same as if the power cord is plugged in and out.

Procedure:

1. Press three buttons [■], [DISPLAY], and [DISC 1] simultaneously.
2. The fluorescent indicator tube becomes blank instantaneously, and the set is reset.

[CD Service Mode]

- This mode can run the CD sled motor freely. Use this mode, for instance, when cleaning the optical pick-up.

Procedure:

1. Press [I/⏻] button to turn the set ON.
2. Select the function "CD".
3. Press three buttons [■], [DISPLAY] , and [⏏ 3] simultaneously.
4. The CD service mode is selected.
5. With the CD in stop status, turn the shuttle knob clockwise to move the optical pick-up to outside track, or turn the shuttle knob counter-clockwise to inside track.
6. To exit from this mode, perform as follows:
   1) Move the optical pick-up to the most inside track.
   2) Press three buttons in the same manner as step 2.

Note:
- Always move the optical pick-up to most inside track when exiting from this mode. Otherwise, a disc will not be unloaded.
- Do not run the sled motor excessively, otherwise the gear can be chipped.

[VACS ON/OFF Mode]

- This mode is used to switch ON and OFF the VACS (Variable Attenuation Control System).

Procedure:

Press the [PUSH ENTER] and [■] buttons simultaneously. The message "VACS OFF" or "VACS ON" appears.

[Change-over of MW Tuner Step between 9 kHz and 10 kHz]

- A step of MW channels can be changed over between 9 kHz and 10 kHz.

Procedure:

1. Press [I/⏻] button to turn the set ON.
2. Select the function "TUNER", and press [TUNER/BAND] button to select the BAND "MW".
3. Press [I/⏻] button to turn the set OFF.
4. Press [MODE SELECT] and [I/⏻] buttons simultaneously, and the display of fluorescent indicator tube changes to "MW 9 k STEP" or "MW 10 k STEP", and thus the channel step is changed over.

[GC Test Mode]

- This mode is used to check the software version, FL tube, LED, keyboard and VACS.

Procedure:

1. Press three buttons [■], [DISPLAY], and [DISC 2] simultaneously.
2. LEDs and fluorescent indicator tube are all turned on.
3. When you want to enter the software version display mode, press [DISC 1]. The model number and destination are displayed.
4. Each time [DISC 1] is pressed, the display changes starting from MC version, GC version, VC version, CD version, CDM version, ST version, TC version, TA version, TM version and BR version in this order, and returns to the model number and destination display.
5. When [DISC 3] is pressed while the version numbers are being displayed except model number and destination, year, month and day of the software creation appear. When [DISC 3] is pressed again, the display returns to the software version display. When [DISC 1] is pressed while year, month and day of the software creation are being displayed, the year, month and day of creation of the software versions are displayed in the same order of version display.
6. Press [DISC 2] button, and the key check mode is activated.
7. In the key check mode, the fluorescent indicator tube displays "K 0 VO 0 STICK N". Each time a button is pressed, "K 0" value increases. However, once a button is pressed, it is no longer taken into account.
   "VO 0" value increases like 1, 2, 3 ... if rotating [VOLUME] knob in "+" direction, or it decreases like 0, 9, 8 ... if rotating in "–" direction.
   Moving the stick changes the "STICK N" display.
   When moved up : "STICK ↑"
   When moved down : "STICK ↓"
   When moved to the left : "STICK ←"
   When moved to the right : "STICK →"
8. Also when [DISC 3] is pressed after lighting of all LEDs and FL tubes, value of VACS appears.
9. To exit from this mode, press three buttons in the same manner as step 1, or disconnect the power cord.

[MC Test Mode]

• This mode is used to check operations of the respective sections of Amplifier, Tuner, CD and Tape.

Procedure:

1. Press the [I/⏻] button to turn on the set.
2. Press the three buttons of [■], [DISPLAY] and [DISC 3] simultaneously.
3. A message "TEST MODE" appears on the FL display tube.
4. When [△ (STIC UP)] button is pressed, GEQ increases to its maximum and a message "GEQ MAX" appears.
5. When [∇ (STIC DOWN)] button is pressed, GEQ decreases to its minimum and a message "GEQ MIN" appears.
6. When [◁ (STIC LEFT)] or [▷ (STIC RIGHT)] button is pressed, GEQ is set to flat and a message "GEQ FLAT" appears.
7. When the VOLUME control knob is turned clockwise even slightly, the sound volume increases to its maximum and a message "VOLUME MAX" appears for two seconds, then the display returns to the original display.
8. When the VOLUME control knob is turned counter-clockwise even slightly, the sound volume decreases to its minimum and a message "VOLUME MIN" appears for two seconds, then the display returns to the original display.
9. In the test mode, the default-preset channel is called even when the TUNER is selected and an attempt is made to call the preset channel that has been stored in memory, by operating the Shuttle knob. (It means that the memory is cleared.)
10. When CD is selected and press [MODE SELECT], and press [PUSH ENTER] when "Set up Mode" is displayed.
    Press [PUSH ENTER] when "CD Set up?" is displayed.
    Move the stick left and right to display "CD Edit Start?", and press [PUSH ENTER], the disc that is being chucked at this moment becomes the default setting. It means that the default disc only is accessed when any other discs are selected even though the display indication changes accordingly. At the same time, the [⏏1] to [⏏5] cannot be accepted. (It means that the tray motor and the turntable motor are disabled of their operation.)
11. When a tape is inserted in Deck B and recording is started, the input source function selects VIDEO automatically.
12. When [■] button is pressed to stop recording, the Tape (Deck) B is selected and tape is rewound using the [◀◀] button, tape is rewound, tape is stops at around the record-starting position and playback of the recorded portion of the tape is started. If PAUSE is inserted even once during recording, tape is rewound to the position around the PAUSE position and is played back.
13. When the [HI-SPEED CD-MD SYNC] Button is press during playback of Deck B, either normal speed or high speed can be selected by this button.
14. Select the desired loop by pressing [MODE SELECT], and press [PUSH ENTER] when "Set up Mode" is displayed.
    Press [PUSH ENTER] when "CD Set up?" is displayed.
    Move the stick left and right to display "Tape Set Up?", and press [PUSH ENTER].
    Press [PUSH ENTER] when "Direction Set Up?" is displayed.
    Move the stick left and right to display "Cycle?", and press [PUSH ENTER].
    Insert a test tape AMS-110A or AMS-RO to Deck A.
15. Press the [SYNC REC] button to enter the AMS test mode.
16. After a tape is rewound first, the FF AMS is checked, and the mechanism is shut off after detecting the AMS signal twice.
17. Then the REW AMS is checked and the mechanism is shut off after detecting the AMS signal twice.
18. When the check is complete, a message of either OK or NG appears.
19. When you want to exit this mode, press the [I/⏻] button twice.
    The cold reset is enforced at the same time.

[Aging Mode]

This mode can be used for operation check of CD section and tape deck section.

- If an error occurred:
  The aging operation stops and display status.
- If no error occurs:
  The aging operation continues repeatedly.

1. Operating method of Aging Mode

Turn on the main power and select “CD” of the function.

1) Set a disc in DISC1 tray. Select ALL DISC CONTINUE, and REPEAT OFF.
2) Load the tapes recording use into the decks A and B respectively.
3) Press three buttons [■], [DISPLAY], and [DISC 4] simultaneously.
4) Aging operations of CD and tape are started at the same time.

• Tape Deck

1. The tape in deck A is rewound. “TAPE A AG-1” is displayed.
2. The FWD side of deck A is played for two minutes.
   “TAPE A AG-2” is displayed.
3. The tape in deck A is fast forwarded. “TAPE A AG-3” is displayed. Fast forward is carried out for 20 seconds or to the tape end.
4. The RVS side of deck A is played for two minutes.
   “TAPE A AG-4” is displayed.
5. The tape in deck A is rewound. “TAPE A AG-5” is displayed.
6. The FWD side of deck B is played for two minutes.
   “TAPE B AG-2” is displayed.
7. The tape in deck B is fast forwarded. “TAPE B AG-3” is displayed. Fast forward is carried out for 20 seconds or to the tape end.
8. The RVS side of deck B is played for two minutes.
   “TAPE B AG-4” is displayed.
9. The tape in deck A is rewound. “TAPE A AG-5” is displayed.
10. Repeated from step 2.

• CD

1. The tray rotates.
2. DISC 5 is chucked.
3. The TOC is read.
4. The first track is played for 3 seconds.
5. The last track is played for 3 seconds.
6. DISC 1 is open.
7. DISC 1 is close.
8. Repeated from step 2.

2. Correction of Errors

[When due to tape deck]

Stopped while tape aging operation with the ”” displayed state.

[When due to CD]

Press [■], [DISPLAY], and [CD ⏏] together to display the error code.

- Display of number of mechanism errors
  Move the stick to the left and right to display “CDM Err Count *”.
  * is the number of mechanism errors.

- Display of mechanism error
  Move the stick to the left and right to display “CDM E**D##$$%%!!”.
  Move the stick up and down to send the error number.

  ** : Error number 00 is the latest error.
  The larger the number, the older will the error be. (Maximum 9)

  ## : FF is the mechanism error after mechanism initialization ends.

  $$: Judge from the first digit of the error number. (Don’t care the second digit.)
  When the error number is 1 or 2, it indicates mechanism error in tray loading between the stocker position and behind it.

  %% : Judge from the first digit of the error number. (Don’t care the second digit.)
  When the error number is 2, it indicates mechanism error in the up/down movements of the stocker.

  !! : Judge from the first digit of the error number. (Don’t care the second digit.)
  When the error number is 2, it indicates mechanism error during switching of the clamper and mode.

- No DISC error display
  Move the stick left and right to display “No Disc Count *”.
  * means the number of no discs.

- No DISC error display
  Move the stick left and right to display “No E**D##$$%%00”.
  Move the stick up and down to send the error number.

  ** : Error number 01 is the latest error.
  The larger the number, the older will the error be. (Maximum 3)

  ## : 01 .... FOCUS ERROR
  02 .... GFS ERROR
  03 .... SET UP ERROR

  $$: 00 .... Judged as No DISC without attempting chucking retry
  02 .... Judged as No DISC after chucking retry

  %% : Judged with the first digit of the error number in the state where No DISC has been determined.
  (Don’t care the second digit.)
  1 ...... STOP
  2 ...... SET UP
  3 ...... TOC Read
  4 ...... Access
  5 ...... PLAY
  6 ...... PAUSE
  7 ...... Manual Search (during PLAY)
  8 ...... Manual Search (during PAUSE)

3. Ending the Aging Mode

1) End the Aging Mode with the power off.
2) To reset the CD error history, be sure to perform cold reset.

4-1. PRECAUTIONS FOR USE OF TEST MODE

- As loading related operations will be performed regardless of the test mode operations being performed, be sure to check that the disc is stopped before setting and removing it.
  Even if the [MD ⏏] button is pressed while the disc is rotating during continuous playback, continuous recording, etc., the disc will not stop rotating.
  Therefore, it will be ejected while rotating.
  Be sure to press the [CLEAR] button while REC IT is lit, and press the [MD ⏏] button while REC IT is off after the disc stops rotating.

4-1-1. Recording laser emission mode and operating buttons

- Continuous recording mode (CREC 1MODE) (C35)
- Laser power check mode (LDPWR CHECK) (C13)
- Laser power adjustment mode (LDPWR ADJUS) (C04)
- Iop check (Iop Compare) (C27)
- Iop value nonvolatile writing (Iop NV Save) (C06)
- Traverse (MO) check (EF MO CHECK) (C14)
- Traverse (MO) adjustment (EF MO ADJUS) (C07)
- When pressing the [MD REC] button.

4-2. SETTING THE TEST MODE

The following are two methods of entering the test mode.

Procedure 1: In the power ON state, set the function to MD, and while pressing the [DISPLAY] and [■] buttons together, press [V-GROOVE].
When the test mode is set, “[Check]” will be displayed. Move the multi-stick to switch between the following three groups;
···⟷ Check ⟷ Service ⟷ Develop ⟷ ···.

Procedure 2: In the power ON state, set the function to MD, and while pressing the [DISPLAY] and [■] buttons together, press the [NAME EDIT/CHARACTER] button.
When the test mode is set, “AUTO CHECK” will be displayed. By setting the test mode using this method, only the “Check” group of method 1 can be executed.

NOTE: Do not use the test mode in the [Develop] group.
If used, the unit may not operate normally.
If the [Develop] group is set accidentally, press the [CLEAR] button while REC IT is lit, immediately to exit the [Develop] group.

4-3. EXITING THE TEST MODE

Press the [MD ⏏] button while REC IT is off. The disc is ejected when loaded, and “Standby” display blinks, and the STANDBY state is set.

4-4. BASIC OPERATIONS OF THE TEST MODE

Operate using the multi-stick, [PUSH ENTER] button, [MD REC MODE] button, [CLEAR] button, [NAME EDIT/CHARACTER] button.

Function name	Function
CLEAR button (When REC IT is lit)	Cancel or move to top hierarchy
PUSH ENTER button	Set
Mulit stick (Left or Right)	Select
MD REC MODE button (When REC IT is lit)	Set submenu
NAME EDIT/CHARACTER button	Switching of button operations (REC IT lights up/goes off)

4-5. SELECTING THE TEST MODE

There are 26 types of test modes as shown below. The groups can be switched by moving the multi-stick. After selecting the group to be used, press the [PUSH ENTER] button. After setting a certain group, move the multi-stick to switche between these modes.
Refer to “Group” in the table for details selected.
All adjustments and checks during servicing can be performed in the test mode in the Service group.

NOTE: Do not use the test mode in the [Develop] group.
If used, the unit may not operate normally.
If the [Develop] group is set accidentally, press the [CLEAR] button while REC IT is lit, immediately to exit the [Develop] group.

Display	No.	Details	Mark	Group	
				Check	Service
AUTO CHECK	C01	Automatic self-diagnosis			○
Err Display	C02	Error history display, clear			○
TEMP ADJUS	C03	Temperature compensation offset adjustment			○
LDPWR ADJUS	C04	Laser power adjustment			○
Iop Write	C05	Iop data writing			○
Iop NV Save	C06	Writes current Iop value in read nonvolatile memory using microprocessor			○
EF MO ADJUS	C07	Traverse (MO) adjustment			○
EF CD ADJUS	C08	Traverse (CD) adjustment			○
FBIAS ADJUS	C09	Focus bias adjustment			○
AG Set (MO)	C10	Focus, tracking gain adjustment (MO)			○
AG Set (CD)	C11	Focus, tracking gain adjustment (CD)			○
TEMP CHECK	C12	Temperature compensation offset check		○	○
LDPWR CHECK	C13	Laser power check		○	○
EF MO CHECK	C14	Traverse (MO) check		○	○
EF CD CHECK	C15	Traverse (CD) check		○	○
FBIAS CHECK	C16	Focus bias check		○	○
ScurveCHECK	C17	S-curve check	×	○	
VERIFYMODE	C18	Nonvolatile memory check	×	○	
DETRK CHECK	C19	Detrack check	×	○	
0920 CHECK	C25	Most circumference check	×	○	
Iop Read	C26	Iop data display		○	○
Iop Compare	C27	Comparison with initial Iop value written in nonvolatile memory		○	○
ADJ CLEAR	C28	Initialization of nonvolatile memory for adjustment values			○
INFORMATION	C31	Display of microprocessor version, etc.		○	○
CPLAY1MODE	C34	Continuous playback mode		○	○
CREC 1MODE	C35	Continuous recording mode		○	○

- For details of each adjustment mode, refer to “6. Electrical Adjustments”.
  For details of “Err Display”, refer to “Self-Diagnosis Function” on page 3.
- If a different mode has been selected by mistake, press the [CLEAR] button while REC IT is lit, to exit that mode.
- Modes with (X) in the Mark column are not used for servicing and therefore are not described in detail. If these modes are set accidentally, press the [CLEAR] button while REC IT is lit, to exit the mode immediately.

4-5-1. Operating the Continuous Playback Mode

1. Entering the continuous playback mode
   ① Set the disc in the unit. (Whichever recordable discs or discs for playback only are available.)
   ② Move the multi-stick and display "CPLAY1MODE"(C34).
   ③ Press the PUSH ENTER button to change the display to "CPLAY1MID".
   ④ When access completes, the display changes to "C = □□□□ AD = □□".
   Note : The numbers "□" displayed show you error rates and ADER.
2. Changing the parts to be played back
   ① Press the PUSH ENTER button during continuous playback to change the display as below.
   "CPLAY1MID" → "CPLAY1OUT" → "CPLAY1IN" → (back to "CPLAY1MID")
   When pressed another time, the parts to be played back can be moved.
   ② When access completes, the display changes to "C = □□□□ AD = □□".
   Note : The numbers "□" displayed show you error rates and ADER.
3. Ending the continuous playback mode
   ① Press the CLEAR button while REC IT is lit. The display will change to "CPLAY1MODE"(C34).
   ② To remove the disc, press the MD ⏏ button while REC IT is off.
   Note : The playback start addresses for IN, MID, and OUT are as follows.

IN	40h cluster
MID	300h cluster
OUT	700h cluster

4-5-2. Operating the Continuous Recording Mode (Use only when performing self-recording/palyback check.)

1. Entering the continuous recording mode
   ① Set a recordable disc in the unit.
   ② Move the multi-stick and display "CREC 1MODE" (C35).
   ③ Press the PUSH ENTER button to change the display to "CREC 1MID".
   ④ When access completes, the display changes to "CREC1 (□□□□)" and MD REC lights up.
   Note : The numbers "□" displayed shows you the recording position addresses.
2. Changing the parts to be recorded
   ① When the PUSH ENTER button is pressed during continuous recording, the display changes as below.
   "CREC 1MID" → "CREC 1OUT" → "CREC 1IN" → (back to "CREC 1MID")
   When pressed another time, the parts to be recorded can be changed. MD REC goes off.
   ② When access completes, the display changes to "CREC 1(□□□□)" and MD REC lights up.
   Note : The numbers "□" displayed shows you the recording position addresses.
3. Ending the continuous recording mode
   ① Press the CLEAR button while REC IT is lit. The display changes to "CREC 1MODE" (C35) and MD REC goes off.
   ② To remove the disc, press the MD ⏏ button while REC IT is off.
   Note 1 : The recording start addresses for IN, MID, and OUT are as follows.

IN	40h cluster
MID	300h cluster
OUT	700h cluster

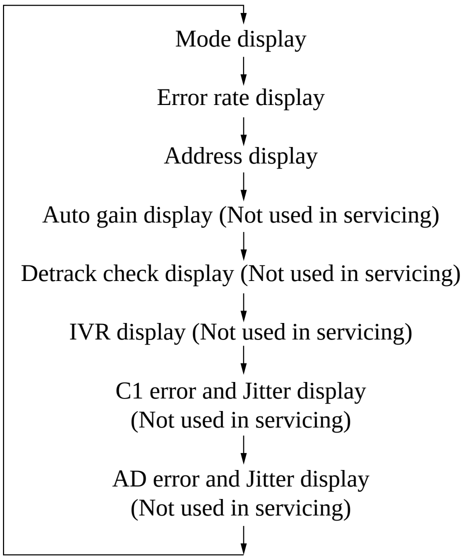
Note 2 : Press the CLEAR button while REC IT is lit can be used to stop recording anytime.
Note 3 : Do not perform continuous recording for long periods of time above 5 minutes.
Note 4 : During continuous recording, be careful not to apply vibration.

4-6. FUNCTIONS OF OTHER BUTTONS

Function	REC IT	Contents
PUSH ENTER	Lit	Sets continuous playback when pressed in the STOP state. When pressed during continuous playback, the tracking servo turns ON/OFF.
CLEAR	Off	Stops continuous playback and continuous recording.
⊳⊳ (FF)	Off	The sled moves to the outer circumference only when this is pressed.
⊲⊲ (FR)	Off	The sled moves to the inner circumference only when this is pressed.
REC MODE	Off	Switches between the pit and groove modes when pressed.
REC	Off	Switches the spindle servo mode (CLV S ⟷ CLV A).
HIGH SPEED CD-MD	Lit	Switches the displayed contents each time the button is pressed.
EJECT	Off	Ejects the disc.
		Exits the test mode. (When No disc)

4-7. TEST MODE DISPLAYS

Each time the [HIGH SPEED CD-MD SYNC] button is pressed, the display changes in the following order.
When CPLAY and CREC are started, the display will forcibly be switched to the error rate display as the initial mode.



1. Mode display

Displays “TEMP ADJUS”(C03), “CPLAY1MODE”(C34), etc.

2. Error rate display

Displays the error rate in the following way.

C1 = □□□□ AD = □□
C1 = Indicates the C1 error.
AD = Indicates ADER.

3. Address display

The address is displayed as follows. (MO:recordable disc, CD:playback only disc)
h = □□□□ s = □□□□ (MO pit and CD)
h = □□□□ a = □□□□ (MO groove)
h = Indicates the header address.
s = Indicates the SUBQ address.
a = Indicates the ADIP address.

Note: “–” is displayed when the address cannnot be read.

4-8. MEANINGS OF OTHER DISPLAYS

Display	Contents	
	When Lit	**When Off**
LP2	Servo ON	Servo OFF
LP4	Tracking servo OFF	Tracking servo ON
MD REC	Recording mode ON	Recording mode OFF
TRACK	CLV low speed mode	CLV normal mode
L.SYNC	ABCD adjustment completed	
OVER	Tracking offset cancel ON	Tracking offset cancel OFF
TOC	Tracking auto gain OK	
REPEAT	Focus auto gain OK	
MD PLAY (LED)	Pit	Groove
DISC	High reflection	Low reflection
x1	CLV S	CLV A
MONO	CLV LOCK	CLV UNLOCK

4-9. AUTOMATIC SELF-DIAGNOSIS FUNCTION

This test mode performs CREC and CPLAY automatically for mainly checking the characteristics of the optical pick-up.
To perform this test mode, the laser power must first be checked.
Perform AUTO CHECK after the laser power check and Iop check.

Procedure

1. Press the PUSH ENTER button. If "LDPWR" is displayed, it means that the laser power check has not been performed. In this case, perform the laser power check and Iop compare, and then repeat from step 1.
2. If a disc is in the mechanical deck, it will be ejected forcibly.
   "DISC IN" will be displayed in this case. Load a test disc (MDW-74/GA-1) which can be recorded.
3. If a disk is loaded at step 2, the check will start automatically.
4. When "XX CHECK" is displayed, the item corresponding to XX will be performed.
   When "06 CHECK" completes, the disc loaded at step 2 will be ejected. "DISC IN" will be displayed. Load the check disc (MD) TDYS-1.
5. When the disc is loaded in step 4, the check will automatically be resumed from "07 CHECK".
6. After completing to test item 12, check OK or NG will be displayed. If all items are OK, "CHECK ALL OK" will be displayed. If any item is NG, it will be displayed as "NG:xxxx".

When "CHECK ALL OK" is displayed, it means that the optical pick-up is normal. Check the operations of the other spindle motor, thread motor, etc.
When displayed as "NG:xxxx", it means that the optical pick-up is faulty. In this case, replace the optical pick-up.

4-10. INFORMATION

Display the software version.

Procedure

1. If displayed as "INFORMATION", press the PUSH ENTER button.
2. The software version will be displayed.
3. Press the CLEAR button while REC IT is lit to end this mode.

4-11. WHEN MEMORY NG IS DISPLAYED

If the nonvolatile memory data is abnormal, "E001"/"MEMORY NG" will be displayed so that the MD deck does not continue operations.
In this case, set the test mode promptly and perform the following procedure.

Procedure

1. Set the test mode. (Refer to 4-2.)
2. Normally a message for selecting the test mode will be displayed. However if the nonvolatile memory is abnormal, the following will be displayed. "INIT EEP?"
3. Press the ■ button and MD ⏏ button together while REC IT is off.
4. Move the multi-stick and select MDM-7B.
5. Press the MD REC MODE button while REC IT is lit. If the nonvolatile memory is successfully overwritten, the normal test mode will be set and a message to select the test mode will be displayed.

SECTION 5
MECHANICAL ADJUSTMENTS

Precaution

1. Clean the following parts with a denatured alcohol-moistened swab:

record/playback heads	pinch rollers
erase head	rubber belts
capstan	idlers

2. Demagnetize the record/playback head with a head demagnetizer.
3. Do not use a magnetized screwdriver for the adjustments.
4. After the adjustments, apply suitable locking compound to the parts adjusted.
5. The adjustments should be performed with the rated power supply voltage unless otherwise noted.

Torque Measurement

Mode	Torque meter	Meter reading
FWD	CQ-102C	3.04 – 6.96 N • m (31 to 71 g • cm) (0.43 – 0.98 oz • inch)
FWD back tension	CQ-102C	0.20 – 0.58 N • m (2 to 6 g • cm) (0.02 – 0.08 oz • inch)
REV	CQ-102RC	3.04 – 6.96 N • m (31 to 71 g • cm) (0.43 – 0.98 oz • inch)
REV back tension	CQ-102RC	0.20 – 0.58 N • m (2 to 6 g • cm) (0.02 – 0.08 oz • inch)
FF/REW	CQ-201B	6.97 – 14.02 N • m (71 to 143 g • cm) (0.98 – 1.99 oz • inch)
FWD tension	CQ-403A	0.98 N • m or more (100 g or more) (3.53 oz or more)
REV tension	CQ-403R	0.98 N • m or more (100 g or more) (3.53 oz or more)

SECTION 6
ELECTRICAL ADJUSTMENTS

DECK SECTION **0 dB=0.775V**

1. Demagnetize the record/playback head with a head demagnetizer.
2. Do not use a magnetized screwdriver for the adjustments.
3. After the adjustments, apply suitable locking compound to the parts adjusted.
4. The adjustments should be performed with the rated power supply voltage unless otherwise noted.
5. The adjustments should be performed in the order given in this service manual. (As a general rule, playback circuit adjustment should be completed before performing recording circuit adjustment.)
6. The adjustments should be performed for both L-CH and R-CH.
7. Switches and controls should be set as follows unless otherwise specified.

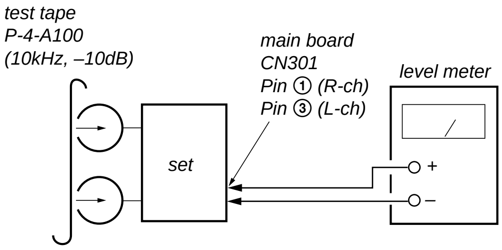
Tape	Signal	Used for
P-4-A100	10 kHz, –10 dB	Azimuth Adjustment
WS-48B	3 kHz, 0 dB	Tape Speed Adjustment
P-4-L300	315 Hz, 0 dB	Level Adjustment

Record/Playback Head Azimuth Adjustment (Deck A, Deck B)

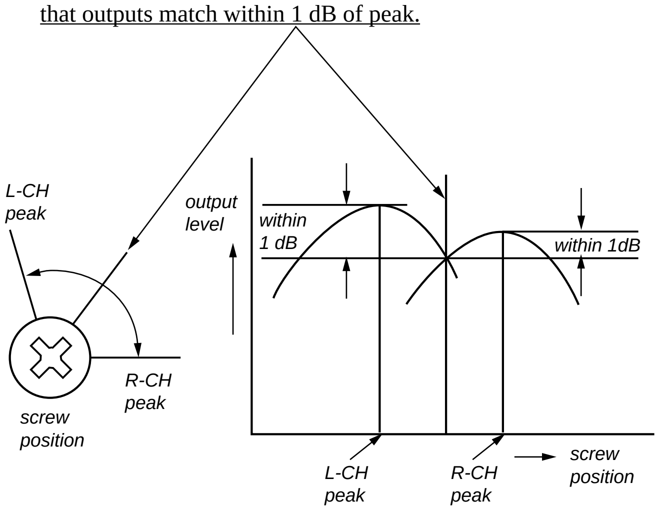
Note: Perform this adjustments for both decks.

Procedure:

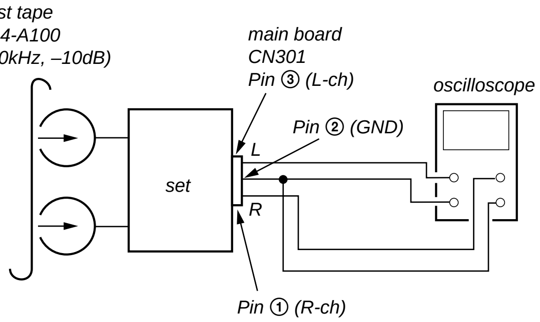
1. Mode : Playback

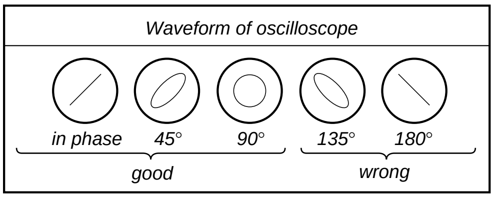


2. Turn the adjustment screw and check output peaks. If the peaks do not match for L-CH and R-CH, turn the adjustment screw so that outputs match within 1 dB of peak.



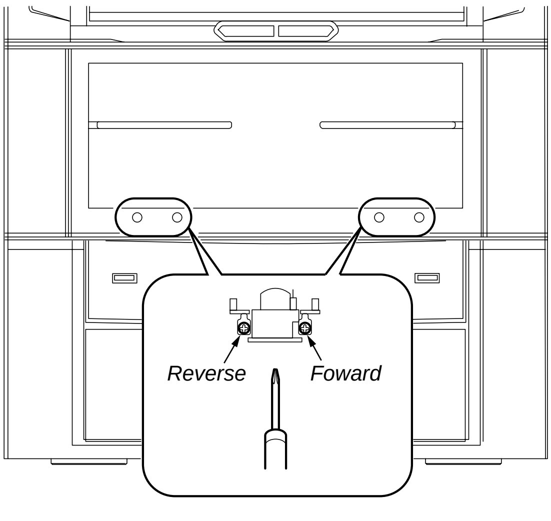
3. Mode: Playback





4. After the adjustments, apply suitable locking compound to the parts adjusted.

Adjustment Location: Playback Head (Deck A)
Record/Playback/Erase Head (Deck B)



Tape Speed Adjustment (Deck A)

Note: Set the test mode using the following method and begin tape speed adjustment.
In the test mode, the speed will switch to double speed or normal speed each time the [HI-SPEED CD-MD SYNC] button is pressed.

Procedure:
With the power turned ON, press the [■] button, [DISPLAY] button, and [DISC 3] button simultaneously.
(The “VOLUME” on the fluorescent display tube will blink while in the test mode.)
To exit the test mode, press the [I/⏻] button.

1. Insert the WS-48B into deck B.
2. Press the [▷] button of deck B.
3. Press the [HI-SPEED CD-MD SYNC] button and play the tape at double speed.
4. Adjust RV1001 of the LEAF SW board so that the reading of the frequency counter becomes 6000 ± 180 Hz.
5. Press the [HI-SPEED CD-MD SYNC] button and play the tape at normal speed.
6. Adjust RV1002 of the LEAF SW board so that the reading of the frequency counter becomes 3000 ± 90 Hz.
7. Press the [I/⏻] button, after the turned ON.
8. Insert the WS-48B into deck A, and insert the normal tape into deck B.
9. Press the [SYNC REC] button and display "TAPE A → B HIGH-SPEED" and then press the [REC] button to start recording.
10. Press the [■] button.
11. Press the [▷] button of deck B and check the reading of frequency counter becomes 3000 ± 90 Hz.

Adjustment Location: LEAF SW board

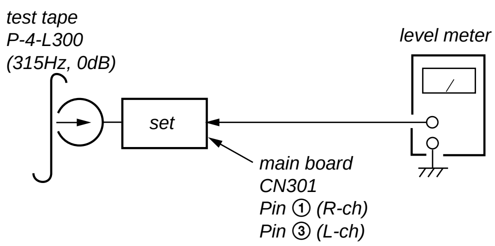
Sample Value of Wow and flutter

W.RMS (JIS) less than 0.3%
(test tape: WS-48B)

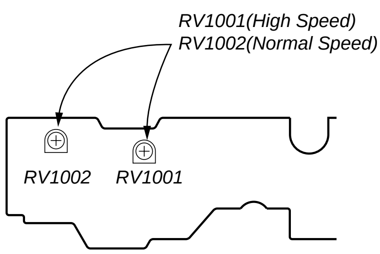
Playback Level Adjustment (Deck A, Deck B)

Procedure:
Mode: Playback
Deck A is RV311 (L-CH) and RV411 (R-CH), deck B is RV301 (L-CH) and RV401 (R-CH)
so that adjustment within the following adjustment level.

Adjustment level:
CN301 playback level: 301.5 to 338.3 mV (–8.2 to –7.2 dB)
level difference between the channels: within ± 0.5 dB
Adjustment Location: AUDIO board



Adjustment Location
[LEAF SW BOARD]



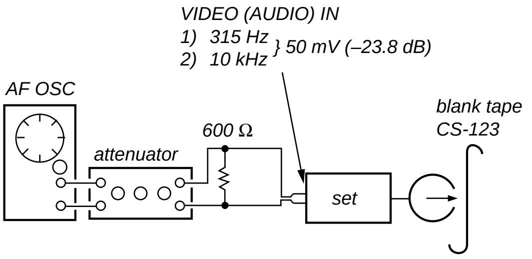
Record Bias Adjustment (Deck B)

Procedure:

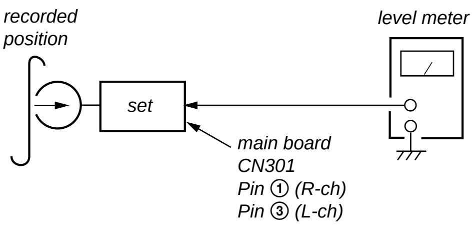
INTRODUCTION

When set to the test mode performed in **Tape Speed Adjustment**, when the tape is rewound after recording, the “REC memory mode” which rewinds only the recorded portion and playback is set.
This “REC memory mode” is convenient for performing this adjustment. During recording, the input signal FUNCTION will automatically switch to VIDEO.
(After recording, press the [◀◀] button without stopping will return to the position where recording was started.)

1. Press [FUNCTION] button to select VIDEO. (This step is not necessary if the above test mode has already been set.)
2. Insert a tape into deck B, press the [REC PAUSE/START] button, and then press the [▷] button to start recording.
3. Mode: Record



4. Mode: Playback



5. Confirm playback the signal recorded in step 2 become adjustment level as follows.
   If these levels do not adjustment level, adjust the RV341 (L-CH) and RV441 (R-CH) on the AUDIO board to repeat steps 3 and 4.

Adjustment level: The playback output of 10 kHz level difference against 315 Hz reference should be 0 ± 0.5 dB.

Adjustment Location: AUDIO board

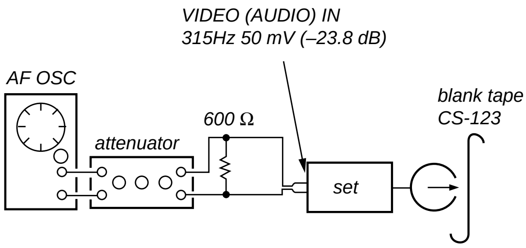
Record Level Adjustment (Deck B)

Procedure:

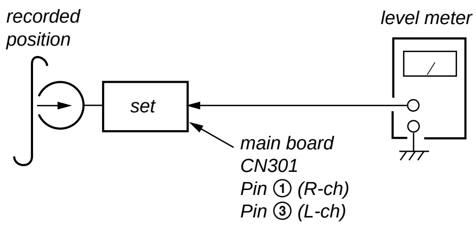
INTRODUCTION

When set to the test mode performed in **Tape Speed Adjustment**, when the tape is rewound after recording, the “REC memory mode” which rewinds only the recorded portion and playback is set.
This “REC memory mode” is convenient for performing this adjustment. During recording, the input signal FUNCTION will automatically switch to VIDEO.
(After recording, press the [◀◀] button without stopping will return to the position where recording was started.)

1. Press [FUNCTION] button to select VIDEO. (This step is not necessary if the above test mode has already been set.)
2. Insert a tape into deck B, press the [REC PAUSE/START] button, and then press the [▷] button to start recording.
3. Mode: Record



4. Mode: Playback

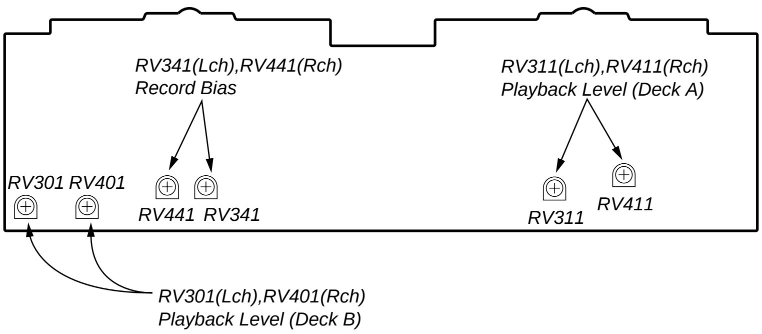


5. Confirm playback the signal recorded in step 2 become adjustment level as follows.
   If these levels do not adjustment level, adjust the RV301 (L-CH) and RV351 (R-CH) on the MAIN board to repeat steps 3 and 4.

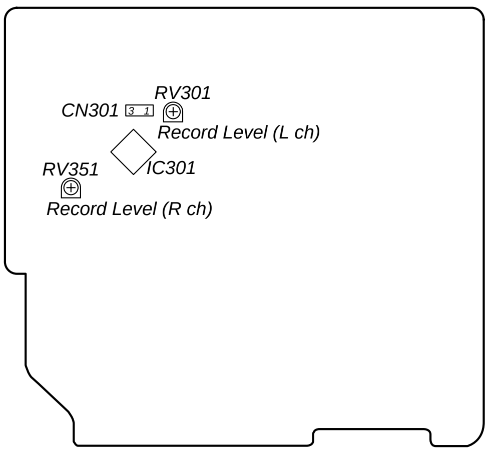
Adjustment level:
CN301 playback level: 47.2 to 53.0 mV (–24.3 to –23.3 dB)

Adjustment Location: MAIN board

Adjustment Location:
[AUDIO BOARD]



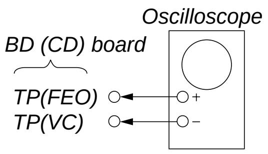
[MAIN BOARD]



CD SECTION

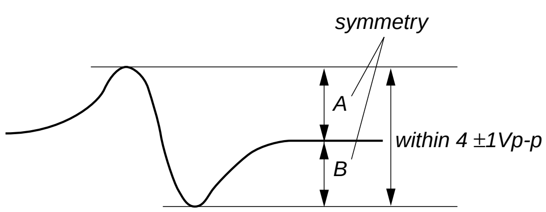
Note :
1. CD Block is basically designed to operate without adjustment. Therefore, check each item in order given.
2. Use YEDS-18 disc (3-702-101-01) unless otherwise indicated.
3. Use an oscilloscope with more than 10MΩ impedance.
4. Clean the object lens by an applicator with neutral detergent when the signal level is low than specified value with the following checks.

S-Curve Check



Procedure :
1. Connect oscilloscope to TP (FEO).
2. Connect between TP (FEI) and TP (VC) by lead wire.
3. Connect between TP (AGCCON) and TP (GND) by lead wire.
4. Turn Power switch on.
5. Load a disc (YEDS-18) and actuate the focus search. (In consequence of open and close the disc tray, actuate the focus search)
6. Confirm that the oscilloscope waveform (S-curve) is symmetrical between A and B. And confirm peak to peak level within 4 ±1 Vp-p.

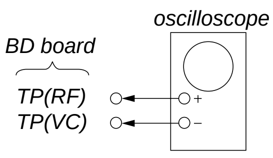
S-curve waveform



7. After check, remove the lead wire connected in step 2 and 3.

Note :
- Try to measure several times to make sure than the ratio of A : B or B : A is more than 10 : 7.
- Take sweep time as long as possible and light up the brightness to obtain best waveform.

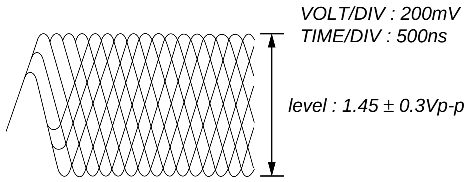
RF Level Check



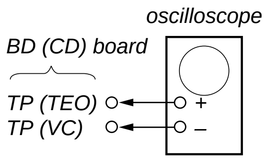
Procedure :
1. Connect oscilloscope to TP (RF).
2. Connect between TP (AGCCON) and TP (GND) by lead wire.
3. Turned Power switch on.
4. Load a disc (YEDS-18) and playback.
5. Confirm that oscilloscope waveform is clear and check RF signal level is correct or not.
6. After check, remove the lead wire connected in step 2.

Note: Clear RF signal waveform means that the shape "◊" can be clearly distinguished at the center of the waveform.

RF signal waveform

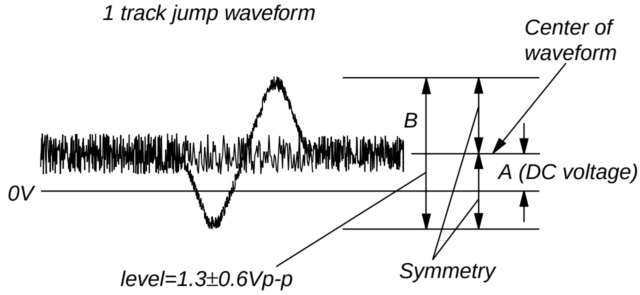


E-F Balance (1 Track jump) Check



Procedure:
1. Connect oscilloscope to TP (TEO) and TP (VC) board.
2. Turned Power switch on.
3. Load a disc (YEDS-18) and playback the number five track.
4. Press the ►II button. (Becomes the 1track jump mode.)
5. Confirm that the level B and A (DC voltage) on the oscilloscope waveform.

1 track jump waveform

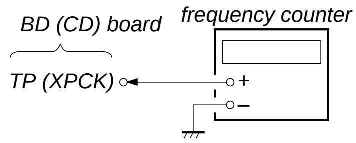


Specification level: $\frac{A}{B}$ x 100=less than ±22%

6. After check, remove the lead wire connected in step 1.

RF PLL Free-run Frequency

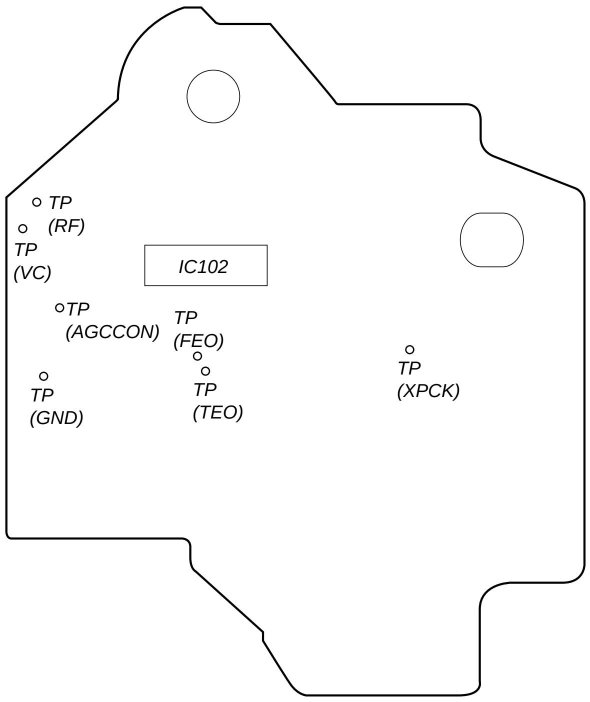
Procedure :
1. Connect frequency counter to test point (XPCK) with lead wire.



2. Turned Power switch on.
3. Put the disc (YEDS-18) in to play the number five track. Confirm that reading on frequency counter is 4.3218MHz.

Adjustment Location :

[BD (CD) BOARD] — SIDE B —

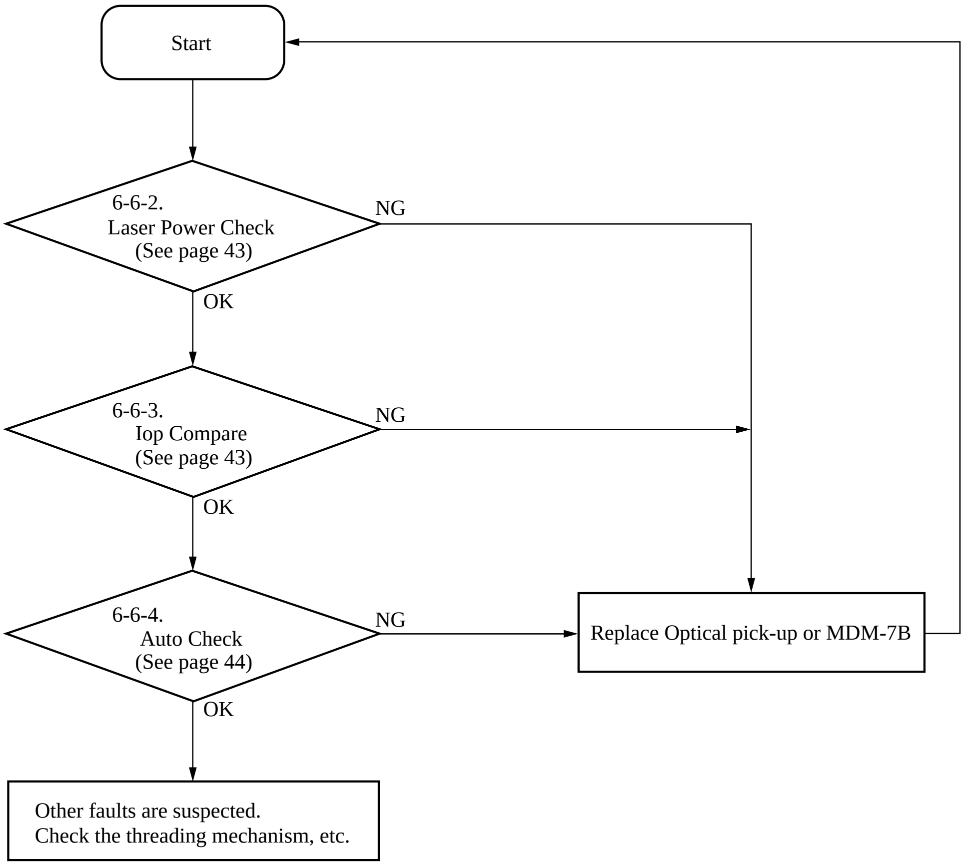


MD SECTION

6-1. PARTS REPLACEMENT AND ADJUSTMENT

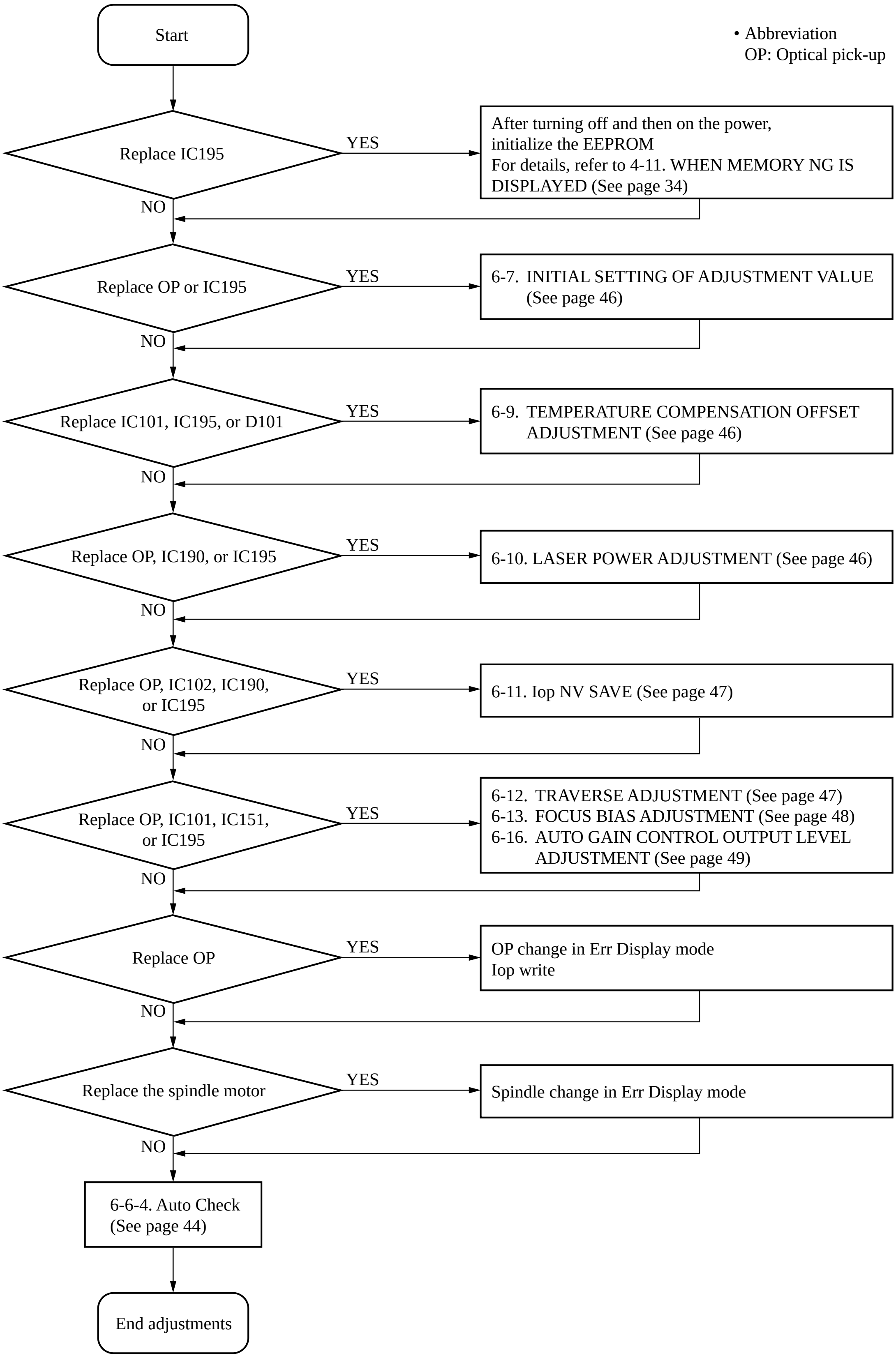
If malfunctions caused by Optical pick-up such as sound skipping are suspected, follow the following check.

Check before replacement



Adjustment flow

• Abbreviation
OP: Optical pick-up

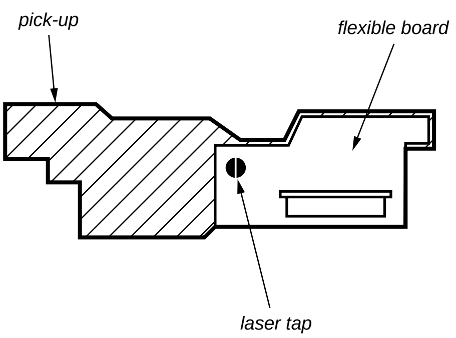


6-2. PRECAUTIONS FOR CHECKING LASER DIODE EMISSION

To check the emission of the laser diode during adjustments, never view directly from the top as this may lose your eye-sight.

6-3. PRECAUTIONS FOR USE OF OPTICAL PICK-UP (KMS-260B)

As the laser diode in the optical pick-up is easily damaged by static electricity, solder the laser tap of the flexible board when using it. Before disconnecting the connector, desolder first. Before connecting the connector, be careful not to remove the solder. Also take adequate measures to prevent damage by static electricity. Handle the flexible board with care as it breaks easily.



Optical pick-up flexible board

6-4. PRECAUTIONS FOR ADJUSTMENTS

1) When replacing the following parts, perform the adjustments and checks with ○ in the order shown in the following table.
2) Set the test mode when performing adjustments.
   After completing the adjustments, exit the test mode.
   Perform the adjustments and checks in "group S" of the test mode.
3) Perform the adjustments to be needed in the order shown.
4) Use the following tools and measuring devices.
   - Check Disc (MD) TDYS-1
     (Parts No. 4-963-646-01)
   - Test Disk (MDW-74/GA-1) (Parts No. 4-229-747-01)
   - Laser power meter LPM-8001 (Parts No. J-2501-046-A)
   or
     MD Laser power meter 8010S (Parts No. J-2501-145-A)
   - Oscilloscope (Measure after performing CAL of prove.)
   - Digital voltmeter
   - Thermometer
   - Jig for checking BD (MD) board waveform
     (Parts No. : J-2501-196-A)
5) When observing several signals on the oscilloscope, etc., make sure that VC and ground do not connect inside the oscilloscope.
   (VC and ground will become short-circuited.)
6) Using the above jig enables the waveform to be checked without the need to solder.
   (Refer to Servicing Note on page 10.)
7) As the disc used will affect the adjustment results, make sure that no dusts nor fingerprints are attached to it.

Adjustment	Parts to be replaced						
	Optical Pick-up	IC101	IC102	IC151	IC190	IC195	D101
6-7. Initial setting of adjustment values	○	×	×	×	×	○	×
6-8. Recording and displaying the Iop information	○	×	×	×	×	○	×
6-9. Temperature compensation offset adjustment	×	○	×	×	×	○	○
6-10. Laser power adjustment	○	×	×	×	○	○	×
6-11. Iop NV Save	○	×	○	×	○	○	×
6-12. Traverse adjustment	○	○	×	○	×	○	×
6-13. Focus bias adjustment	○	○	×	○	×	○	×
6-16. Auto gain control output level adjustment	○	○	×	○	×	○	×
6-6-4. Auto Check	○	○	×	○	○	○	×

6-5. USING THE CONTINUOUSLY RECORDED DISC

* This disc is used in focus bias adjustment and error rate check. The following describes how to create a continuous recording disc.

1. Insert a disc (blank disc) commercially available.
2. Move the multi-stick and display “CREC 1MODE”(C35).
3. Press the [PUSH ENTER] button again to display “CREC 1MID”. Display “CREC (0300)” and start to recording.
4. Complete recording within 5 minutes.
5. Press the [CLEAR] button while REC IT is lit and stop recording.
6. Press the [MD ⏏] button while REC IT is off and remove the disc.

The above has been how to create a continuous recorded data for the focus bias adjustment and error rate check.

Note :

• Be careful not to apply vibration during continuous recording.

6-6. CHECKS PRIOR TO REPAIRS

These checks are performed before replacing parts according to “approximate specifications” to determine the faulty locations. For details, refer to “Checks Prior to Parts Replacement and Adjustments” (See page 12).

6-6-1. Temperature Compensation Offset Check

When performing adjustments, set the internal temperature and room temperature to 22 to 28ºC.

Checks cannot be performed properly if performed after some time from power ON due to the rise in the temperature of the IC and diode, etc. So, perform the checks again after waiting some time.

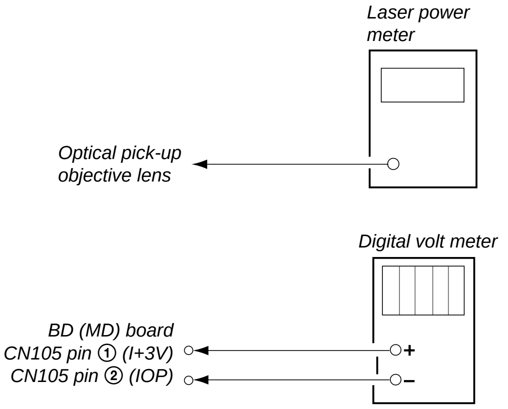
Checking Procedure:

1. Move the multi-stick to display “TEMP CHECK”(C12).
2. Press the [PUSH ENTER] button.
3. “T=@@(##) [OK]” should be displayed. If “T=@@ (##) [NG]” is displayed, it means that the results are bad. (@@ indicates the current value set, and ## indicates the value written in the non-volatile memory.)

6-6-2. Laser Power Check

Before checking, check the Iop value of the optical pick-up. (Refer to 6-8. Recording and Displaying Iop Information.)

Connection :

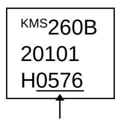


Checking Procedure:

1. Set the laser power meter on the objective lens of the optical pick-up. (If cannot set properly, press the [◀◀] or [▶▶] button while REC IT is off and move the optical pick-up.) Connect the digital volt meter to CN105 pin ① (I+3V) and CN105 pin ② (IOP).
2. Then, move the multi-stick and display “LDPWR CHECK” (C13).
3. Press the [PUSH ENTER] button once and display “LD 0.9 mW $ ::”. Check that the reading of the laser power meter become 0.82 to 0.91 mW.
4. Press the [PUSH ENTER] button once more and display “ LD 7.0 mW $ ::”. Check that the reading the laser power meter and digital volt meter satisfy the specified value.

Specified Value :

Laser power meter reading : 7.0 ± 0.1 mW
Digital voltmeter reading : Optical pick-up displayed value ± 10%



(For details of the method for checking this value, refer to “6-8. Recording and Displaying Iop Information”.)

Iop = 57.6 mA in this case
Iop (mA) = Digital voltmeter reading (mV)/1 (Ω)

(Optical pick-up label)

5. Press the [CLEAR] button while REC IT is lit and display “LDPWR CHECK”(C13) and stop the laser emission. (The [CLEAR] button while REC IT is lit, it is effective at all times to stop the laser emission.)

Note 1: After step 4, each time the [PUSH ENTER] button is pressed, the display will be switched between “LD 0.7 mW $ ::”, “LD 6.2 mW $ ::”, and “LD Wp $ ::”. Nothing needs to be performed here.

6-6-3. Iop Compare

The current Iop value at laser power 7 mw output and reference Iop value (set at shipment) written in the nonvolatile memory are compared, and the rate of increase/decrease will be displayed in percentage.

Note: Perform this function with the optical pick-up set at room temperature.

Procedure

1. Move the multi-stick to display “Iop Compare”(C27).
2. Press the [PUSH ENTER] button and start measurements.
3. When measurements complete, the display changes to “±xx%yy”. xx is the percentage of increase/decrease, and OK or NG is displayed at yy to indicate whether the percentage of increase/decrease is within the allowable range.
4. Press the [CLEAR] button to end while REC IT is lit.

6-6-4. Auto Check

This test mode performs CREC and CPLAY automatically for mainly checking the characteristics of the optical pick-up. To perform this test mode, the laser power must first be checked. Perform Auto Check after the laser power check and Iop compare.

Procedure

1. Press the PUSH ENTER button. If "LDPWR" is displayed, it means that the laser power check has not been performed. In this case, perform the laser power check and Iop compare, and then repeat from step 1.
2. If a disc is in the mechanical deck, it will be ejected forcibly. "DISC IN" will be displayed in this case. Load a test disc (MDW-74/GA-1) which can be recorded.
3. If a disk is loaded at step 2, the check will start automatically.
4. When "XX CHECK" is displayed, the item corresponding to XX will be performed.
   When "06 CHECK" completes, the disc loaded at step 2 will be ejected. "DISC IN" will be displayed. Load the check disc (MD) TDYS-1.
5. When the disc is loaded, the check will automatically be resumed from "07 CHECK".
6. After completing to test item 12, check OK or NG will be displayed. If all items are OK, "CHECK ALL OK" will be displayed. If any item is NG, it will be displayed as "NG:xxxx".

When "CHECK ALL OK" is displayed, it means that the optical pick-up is normal. Check the operations of the other spindle motor, thread motor, etc.
When displayed as "NG:xxxx", it means that the optical pick-up is faulty. In this case, replace the optical pick-up.

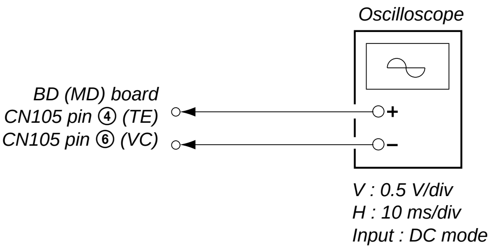
6-6-5. Other Checks

All the following checks are performed by the Auto Check mode. They therefore need not be performed in normal operation.

6-6-6. Traverse Check
6-6-7. Focus Bias Check
6-6-8. C PLAY Check
6-6-9. Self-Recording/Playback Check

6-6-6. Traverse Check

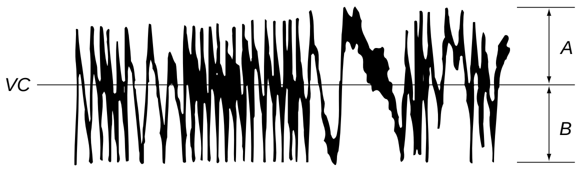
Connection :



Checking Procedure:

1. Connect an oscilloscope to CN105 pin ④ (TE) and CN105 pin ⑥ (VC) of the BD (MD) board.
2. Load a test disc (MDW-74/GA-1). (Refer to Note 1.)
3. Press the ◀◀ or ▶▶ button while REC IT is off, and move the optical pick-up outside the pit.
4. Move the multi-stick and display "EF MO CHECK"(C14).
5. Press the PUSH ENTER button and display "EFB = □□ MO-R". (Laser power READ power/Focus servo ON/tracking servo OFF/ spindle (S) servo ON)
6. Observe the waveform of the oscilloscope, and check that the specified value is satisfied.
   (Read power traverse checking)

(Traverse Waveform)

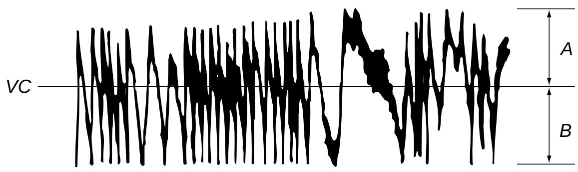


Specified value : Below 10% offset value

Offset value (%) = $\frac{|A - B|}{2\,(A + B)} \times 100$

7. Press the PUSH ENTER button and display "EFB = □□ MO-W".
8. Observe the waveform of the oscilloscope, and check that the specified value is satisfied.
   (Write power traverse checking)

(Traverse Waveform)

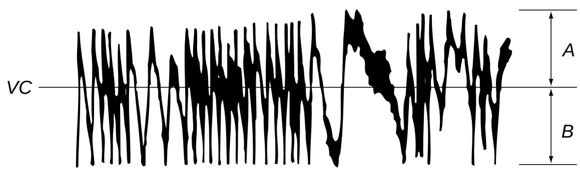


Specified value : Below 10% offset value

Offset value (%) = $\frac{|A - B|}{2\,(A + B)} \times 100$

9. Press the PUSH ENTER button display "EFB = □□ MO-P".
   Then, the optical pick-up moves to the pit area automatically and servo is imposed.
10. Observe the waveform of the oscilloscope, and check that the specified value is satisfied.

(Traverse Waveform)



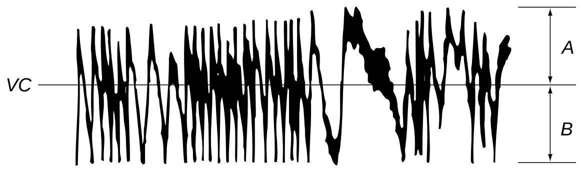
Specified value : Below 10% offset value

Offset value (%) = $\frac{|A - B|}{2\,(A + B)} \times 100$

11. Press the PUSH ENTER button display "EF MO CHECK" (C14).
    The disc stops rotating automatically.
12. Press the MD ⏏ button while REC IT is off and remove the disc.
13. Load the check disc (MD) TDYS-1.
14. Move the multi-stick and display "EF CD CHECK" (C15).
15. Press the PUSH ENTER button and display "EFB = □□ CD".
    Servo is imposed automatically.

16. Observe the waveform of the oscilloscope, and check that the specified value is satisfied. Do not move the Multi stick.

(Traverse Waveform)



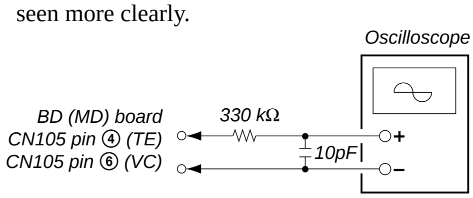
Specified value : Below 10% offset value

$$\text{Offset value (\%)} = \frac{|A - B|}{2\,(A + B)} \times 100$$

17. Press the PUSH ENTER button and display "EF CD CHECK" (C15).
18. Press the MD ⏏ button while REC IT is off and remove the check disc (MD) TDYS-1.

Note 1 : MO reading data will be erased during if a recorded disc is used in this adjustment.

Note 2 : If the traverse waveform is not clear, connect the oscilloscope as shown in the following figure so that it can be seen more clearly.



6-6-7. Focus Bias Check

Change the focus bias and check the focus tolerance amount.

Checking Procedure :

1. Load a continuously recorded test disc (MDW-74/GA-1). (Refer to "6-5. Using the Continuously Recorded Disc".)
2. Move the multi-stick and display "CPLAY1MODE"(C34).
3. Press the PUSH ENTER button and display "CPLAY1MID".
4. Press the CLEAR button while REC IT is lit when "C = □□□□ AD = □□" is displayed.
5. Move the multi-stick and display "FBIAS CHECK"(C16).
6. Press the PUSH ENTER button and display " □□□□/□□ c = □□". The first four digits indicate the C1 error rate, the two digits after [/] indicate ADER, and the 2 digits after [c =] indicate the focus bias value.
   Check that the C1 error is below 20 and ADER is below 2.
7. Press the PUSH ENTER button and display " □□□□/□□ b = □□". Check that the C1 error is below 100 and ADER is below 2.
8. Press the PUSH ENTER button and display " □□□□/□□ a = □□". Check that the C1 error is below 100 and ADER is below 2.
9. Press the CLEAR button while REC IT is lit, next press the MD ⏏ button while REC IT is off, and remove the test disc.

6-6-8. C PLAY Check

MO Error Rate Check

Checking Procedure :

1. Load a continuously recorded test disc (MDW-74/GA-1). (Refer to "6-5. Using the Continuously Recorded Disc".)
2. Move the multi-stick and display "CPLAY1MODE"(C34).
3. Press the PUSH ENTER button and display "CPLAY1MID".
4. The display changes to "C1 = □□□□ AD = □□".
5. If the C1 error rate is below 20, check that ADER is 00.
6. Press the CLEAR button while REC IT is lit, stop playback, press the MD ⏏ button while REC IT is off, and test disc.

CD Error Rate Check

Checking Procedure :

1. Load a check disc (MD) TDYS-1.
2. Move the multi-stick and display "CPLAY1MODE"(C34).
3. Press the PUSH ENTER button twice and display "CPLAY1 MID".
4. The display changes to "C1 = □□□□ AD = □□".
5. Check that the C1 error rate is below 20.
6. Press the CLEAR button while REC IT is lit, stop playback, press the MD ⏏ button while REC IT is off, and the test disc.

6-6-9. Self-Recording/playback Check

Prepare a continuous recording disc using the unit to be repaired and check the error rate.

Checking Procedure :

1. Insert a recordable test disc (MDW-74/GA-1) into the unit.
2. Move the multi-stick to display "CREC 1MODE"(C35).
3. Press the PUSH ENTER button to display the "CREC 1MID".
4. When recording starts, " MD REC " is displayed, this becomes "CREC (@@@@)" (@@@@ is the address), and recording starts.
5. About 1 minute later, press the CLEAR button to stop continuous recording while REC IT is lit.
6. Move the multi-stick to display "CPLAY1MODE"(C34).
7. Press the PUSH ENTER button to display "CPLAY1MID".
8. "C1 = □□□□ AD = □□" will be displayed.
9. Check that the C1 error becomes below 20 and the AD error below 2.
10. Press the CLEAR button to stop playback while REC IT is lit, and press the MD ⏏ button while REC IT is off and remove the disc.

6-7. INITIAL SETTING OF ADJUSTMENT VALUE

Note:
Mode which sets the adjustment results recorded in the non-volatile memory to the initial setting value. However the results of the temperature compensation offset adjustment will not change to the initial setting value.
If initial setting is performed, perform all adjustments again excluding the temperature compensation offset adjustment.
For details of the initial setting, refer to “6-4. Precautions on Adjustments” and execute the initial setting before the adjustment as required.

Setting Procedure :
1. Move the multi-stick to display “ADJ CLEAR” (C28).
2. Press the [PUSH ENTER] button. “Complete!” will be displayed momentarily and initial setting will be executed, after which “ADJ CLEAR” (C28) will be displayed.

6-8. RECORDING AND DISPLAYING THE Iop INFORMATION
The Iop data can be recorded in the non-volatile memory. The Iop value on the label of the optical pick-up and the Iop value after the adjustment will be recorded. Recording these data eliminates the need to read the label on the optical pick-up.

Recording Procedure :
1. Move the multi-stick to display “Iop Write” (C05), and press the [PUSH ENTER] button.
2. The display becomes Ref=@@@.@ (@ is an arbitrary number) and the numbers which can be changed will blink.
3. Input the Iop value written on the optical pick-up.
   To select the number : Move the multi-stick.
   To select the digit : Press the [MD REC MODE] button while REC IT is lit.
4. When the [PUSH ENTER] button is pressed, the display becomes “Measu=@@@.@” (@ is an arbitrary number).
5. As the adjustment results are recorded for the 6 value. Leave it as it is and press the [PUSH ENTER] button.
6. “Complete!” will be displayed momentarily. The value will be recorded in the non-volatile memory and the display will become “Iop Write” (C05).

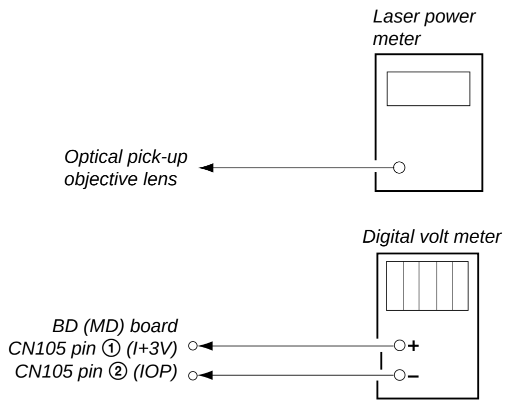
Display Procedure :
1. Move the multi-stick to display “Iop Read”(C26).
2. Press the [PUSH ENTER] button.
2. “@@.@/##.#” is displayed and the recorded contents are displayed.
   @@.@ indicates the Iop value labeled on the pick-up.
   ##.# indicates the Iop value after adjustment
3. To end, press the [CLEAR] button while REC IT is lit, or press the [MD REC MODE] button while REC IT is lit and display “Iop Read” (C26).

6-9. TEMPERATURE COMPENSATION OFFSET ADJUTMENT
Save the temperature data at that time in the non-volatile memory as 25 ˚C reference data.
Note :
1. Usually, do not perform this adjustment.
2. Perform this adjustment in an ambient temperature of 22 ˚C to 28 ˚C. Perform it immediately after the power is turned on when the internal temperature of the unit is the same as the ambient temperature of 22 ˚C to 28 ˚C.
3. When D101 has been replaced, perform this adjustment after the temperature of this part has become the ambient temperature.

Adjusting Procedure :
1. Move the multi-stick and display “TEMP ADJUS” (C03).
2. Press the [PUSH ENTER] button and select the “TEMP ADJUS” (C03) mode.
3. “TEMP = □□ [OK]” and the current temperature data will be displayed.
4. To save the data, press the [PUSH ENTER] button.
   When not saving the data, press the [CLEAR] button while REC IT is lit.
5. When the [PUSH ENTER] button is pressed, “TEMP = □□ SAVE” will be displayed and turned back to “TEMP ADJUS” (C03) display then. Pressing the [CLEAR] button while REC IT is lit displays “TEMP ADJUS” (C03) immediately.

Specified Value :
The “TEMP = □□” should be within “E0 - EF”, “F0 - FF”, “00 - 0F”, “10 - 1F” and “20 - 2F”.

6-10. LASER POWER ADJUSTMENT
Check the Iop value of the optical pick-up before adjustments.
(Refer to 6-8. Recording and Displaying Iop Information.)



Connection :
Adjusting Procedure :
1. Set the laser power meter on the objective lens of the optical pick-up. (When it cannot be set properly,press the [◀◀] or [▶▶] button while REC IT is off and move the optical pick-up.)
   Connect the digital volt meter to CN105 pin ① (I+3V) and CN105 pin ② (IOP).
2. Move the multi-stick and display “LDPWR ADJUS” (C04).
   (Laser power : For adjustment)
3. Press the [PUSH ENTER] button once and display “LD 0.9 mW $ □□”.
4. Move the multi-stick so that the reading of the laser power meter becomes 0.85 to 0.91 mW. Press the [PUSH ENTER] button after setting the range knob of the laser power meter, and save the adjustment results. (“LD SAVE $ □□” will be displayed for a moment.)
5. Then “LD 7.0 mW $ □□” will be displayed.
6. Move the multi-stick so that the reading of the laser power meter becomes 6.9 to 7.1 mW, press the [PUSH ENTER] button and save it.

Note : Do not perform the emission with 7.0 mW more than 15 seconds continuously.

7. Then, move the multi-stick and display “LDPWR CHECK” (C13).
8. Press the [PUSH ENTER] button once and display “LD 0.9 mW $ □□”. Check that the reading of the laser power meter become 0.85 to 0.91 mW.
9. Press the [PUSH ENTER] button once more and display “LD 7.0 mW $ □□”. Check that the reading the laser power meter and digital volt meter satisfy the specified value.
   Note down the digital voltmeter reading value.

Specified Value :
Laser power meter reading : 7.0 ± 0.1 mW
Digital voltmeter reading : Optical pick-up displayed value ± 10%

(Optical pick-up label)

KMS260B
20101
H0576

(For details of the method for checking this value, refer to “6-8. Recording and Displaying the IOP Information”.)

Iop = 57.6 mA in this case
Iop (mA) = Digital voltmeter reading (mV)/1 (Ω)

10. Press the [CLEAR] button while REC IT is lit and display “LDPWR CHECK” (C13) and stop the laser emission.
    (The [CLEAR] button is effective at all times to stop the laser emission.)
11. Move the multi-stick to display “Iop Write”(C05).
12. Press the [PUSH ENTER] button. When the display becomes Ref=@@@.@ (@ is an arbitrary number), press the [PUSH ENTER] button to display “Measu=@@@.@” (@ is an arbitrary number).
13. The numbers which can be changed will blink. Input the Iop value noted down at step 9.
    To select the number : Move the multi-stick.
    To select the digit : Press the [MD REC MODE] button while REC IT is lit.
14. When the [PUSH ENTER] button is pressed, “Complete!” will be displayed momentarily. The value will be recorded in the non-volatile memory and the display will become “Iop Write” (C05).

Note 1: After step 4, each time the [PUSH ENTER] button is pressed, the display will be switched between “LD 0.7 mW $ □□”, “LD 6.2 mW $ □□”, and “LD Wp $ □□”. Nothing needs to be performed here.

6-11. Iop NV SAVE

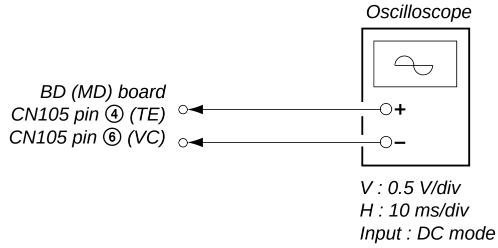
Write the reference values in the nonvolatile memory to perform “Iop compare”. As this involves rewriting the reference values, do not perform this procedure except when adjusting the laser power during replacement of the Optical pick-up and when replacing the IC102. Otherwise the Optical pick-up check may deteriorate.

Note: Perform this function with the optical pick-up set at room temperature.

Procedure
1. Move the multi-stick to display “Iop NV Save” (C06).
2. Press the [PUSH ENTER] button and display “Iop [stop]”.
3. After the display changes to “Iop =xxsave?”, press the [PUSH ENTER] button.
4. After “Complete!” is displayed momentarily, the display changes to “Iop 7.0 mW”.
5. After the display changes to “Iop=yysave?”, press the [PUSH ENTER] button.
6. When “Complete!” is displayed, it means that Iop NV saving has been completed.

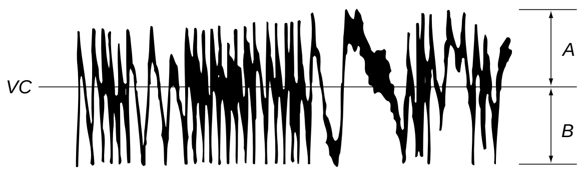
6-12. TRAVERSE ADJUSTMENT

Connection :



Adjusting Procedure :
1. Connect an oscilloscope to CN105 pin ④ (TE) and CN105 pin ⑥ (VC) of the BD board.
2. Load a test disc (MDW-74/GA-1). (Refer to Note 1.)
3. Press the [◀◀] or [▶▶] button while REC IT is off and move the optical pick-up outside the pit.
4. Move the multi-stick and display “EF MO ADJUS” (C14).
5. Press the [PUSH ENTER] button and display “EFB = □□ MO-R”.
   (Laser power READ power/Focus servo ON/tracking servo OFF/ spindle (S) servo ON)
6. Move the multi-stick so that the waveform of the oscilloscope becomes the specified value.
   (When the Multi sitck is moved, the □□ of “EFB= □□” changes and the waveform changes.) In this adjustment, waveform varies at intervals of approx. 2%. Adjust the waveform so that the specified value is satisfied as much as possible.
   (Read power traverse adjustment)

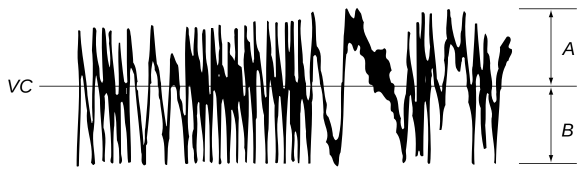
(Traverse Waveform)



Specification A = B

7. Press the [PUSH ENTER] button and save the result of adjustment to the non-volatile memory (“EFB = □□ SAVE” will be displayed for a moment. Then “EFB = □□ MO-W” will be displayed).
8. Move the multi-stick so that the waveform of the oscilloscope becomes the specified value.
   (When the Multi stick is moved, the □□ of “EFB- □□ MO-W” changes and the waveform changes.) In this adjustment, waveform varies at intervals of approx. 2%. Adjust the waveform so that the specified value is satisfied as much as possible.
   (Write power traverse adjustment)

(Traverse Waveform)

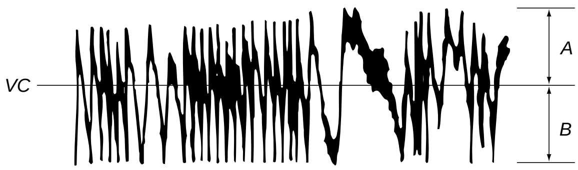


Specification A = B

9. Press the [PUSH ENTER] button, and save the adjustment results in the non-volatile memory. (“EFB = □□ SAVE” will be displayed for a moment.)
10. “EFB = □□ MO-P”. will be displayed.
    The optical pick-up moves to the pit area automatically and servo is imposed.

11. Move the multi-stick until the waveform of the oscilloscope moves closer to the specified value.
    In this adjustment, waveform varies at intervals of approx. 2%. Adjust the waveform so that the specified value is satisfied as much as possible.

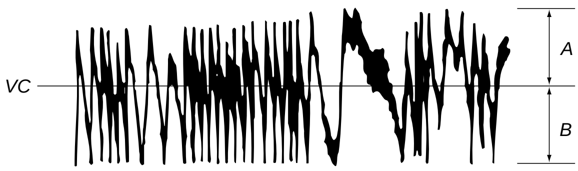
(Traverse Waveform)



Specification A = B

12. Press the PUSH ENTER button, and save the adjustment results in the non-volatile memory. ("EFB = □□ SAVE" will be displayed for a moment.)
    Next "EF MO ADJUS" (C07) is displayed. The disc stops rotating automatically.
13. Press the MD ⏏ button while REC IT is off and remove the disc.
14. Load the check disc (MD) TDYS-1.
15. Move the multi-stick and display "EF CD ADJUS" (C08).
16. Press the PUSH ENTER button and display "EFB = □□ CD". Servo is imposed automatically.
17. Move the multi-stick so that the waveform of the oscilloscope moves closer to the specified value.
    In this adjustment, waveform varies at intervals of approx. 2%. Adjust the waveform so that the specified value is satisfied as much as possible.

(Traverse Waveform)

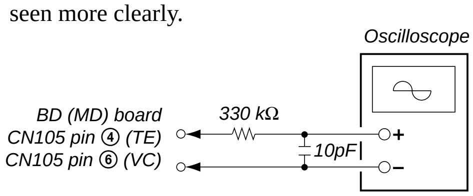


Specification A = B

18. Press the PUSH ENTER button, display "EFB = □□ SAVE" for a moment and save the adjustment results in the non-volatile memory.
    Next "EF CD ADJUS" (C08) will be displayed.
19. Press the MD ⏏ button while REC IT is off and remove the check disc (MD) TDYS-1.

Note 1 : MO reading data will be erased during if a recorded disc is used in this adjustment.

Note 2 : If the traverse waveform is not clear, connect the oscilloscope as shown in the following figure so that it can be seen more clearly.



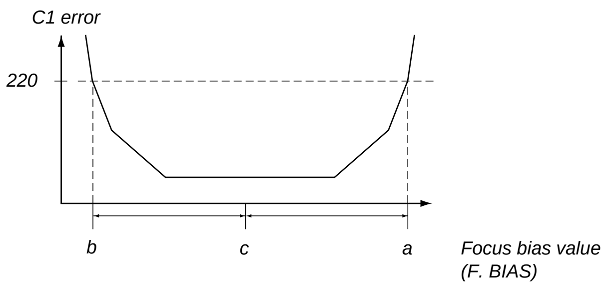
6-13. FOCUS BIAS ADJUSTMENT

Adjusting Procedure :

1. Load a test disk (MDW-74/GA-1).
2. Move the multi-stick and display "CPLAY1MODE"(C34).
3. Press the PUSH ENTER button and display "CPLAY1MID".
4. Press the CLEAR button while REC IT is lit when "C1 = □□□□ AD = □□" is displayed.
5. Move the multi-stick and display "FBIAS ADJUS"(C09).
6. Press the PUSH ENTER button and display " □□□□/□□ a = □□". The first four digits indicate the C1 error rate, the two digits after [/] indicate ADER, and the 2 digits after [a =] indicate the focus bias value.
7. Move the multi-stick in the right direction and find the focus bias value at which the C1 error rate becomes 220 (Refer to Note 2).
8. Press the PUSH ENTER button and display " □□□□/□□ b = □□".
9. Move the multi-stick in the left direction and find the focus bias value at which the C1 error rate becomes 220.
10. Press the PUSH ENTER button and display " □□□□/□□ c = □□".
11. Check that the C1 error rate is below 20 and ADER is 00. Then press the PUSH ENTER button.
12. If the "(□□" in "□□ - □□ - □□ (□□" is above 20, press the PUSH ENTER button.
    If below 20, press the CLEAR button while REC IT is lit and repeat the adjustment from step 2.
13. Press the MD ⏏ button while REC IT is off and remove the test disc.

Note 1 : The relation between the C1 error and focus bias is as shown in the following figure. Find points a and b in the following figure using the above adjustment. The focal point position C is automatically calculated from points a and b.

Note 2 : As the C1 error rate changes, perform the adjustment using the average vale.



6-14. ERROR RATE CHECK

6-14-1. CD Error Rate Check

Checking Procedure :

1. Load a check disc (MD) TDYS-1.
2. Move the multi-stick and display “CPLAY1MODE” (C34).
3. Press the PUSH ENTER button twice and display “CPLAY1 MID”.
4. The display changes to “C1 = □□□□ AD = □□”.
5. Check that the C1 error rate is below 20.
6. Press the CLEAR button while REC IT is lit, stop playback, press the MD ⏏ button while REC IT is off, and remove the test disc.

6-14-2. MO Error Rate Check

Checking Procedure :

1. Load a continuously recorded test disc (MDW-74/GA-1). (Refer to “6-5. Using the Continuously Recorded Disc”.)
2. Move the multi-stick and display “CPLAY1MODE” (C34).
3. Press the PUSH ENTER button and display “CPLAY1MID”.
4. The display changes to “C1 = □□□□ AD = □□”.
5. If the C1 error rate is below 20, check that ADER is 00.
6. Press the CLEAR buttonwhile REC IT is lit, stop playback, press the MD ⏏ button while REC IT is off, and remove the test disc.

6-15. FOCUS BIAS CHECK

Change the focus bias and check the focus tolerance amount.

Checking Procedure :

1. Load a continuously recorded test disc (MDW-74/GA-1). (Refer to “6-5. Using the Continuously Recorded Disc”.)
2. Move the multi-stick and display “CPLAY1 MODE”(C34).
3. Press the PUSH ENTER button twice and display “CPLAY1 MID”.
4. Press the CLEAR button while REC IT is lit when “C1 = □□□□ AD = □□” is displayed.
5. Move the multi-stick and display “FBIAS CHECK”(C16).
6. Press the PUSH ENTER button and display “ □□□□/□□ c = □□”. The first four digits indicate the C1 error rate, the two digits after [/] indicate ADER, and the 2 digits after [c =] indicate the focus bias value.
   Check that the C1 error is below 20 and ADER is below 2.
7. Press the PUSH ENTER button and display “ □□□□/□□ b = □□”. Check that the C1 error is below 100 and ADER is below 2.
8. Press the PUSH ENTER button and display “ □□□□/□□ a = □□”. Check that the C1 error is below 100 and ADER is below 2
9. Press the CLEAR button while REC IT is lit, next press the MD ⏏ button while REC IT is off and remove the continuously recorded disc.

Note 1 : If the C1 error and ADER are above other than the specified value at points a (step 8. in the above) or b (step 7. in the above), the focus bias adjustment may not have been carried out properly. Adjust perform the beginning again.

6-16. AUTO GAIN CONTROL OUTPUT LEVEL ADJUSTMENT

Be sure to perform this adjustment when the Optical pick-up is replaced.
If the adjustment results becomes “Adjust NG!”, the Optical pick-up may be faulty or the servo system circuits may be abnormal.

6-16-1. CD Auto Gain Control Output Level Adjustment

Adjusting Procedure :

1. Insert the check disc (MD) TDYS-1.
2. Move the multi-stick to display “AG Set (CD)” (C11).
3. When the PUSH ENTER button is pressed, the adjustment will be performed automatically.
   “Complete!” will then be displayed momentarily when the value is recorded in the non-volatile memory, after which the display changes to “AG Set (CD)” (C11).
4. Press the MD ⏏ button while REC IT is off and remove the disc.

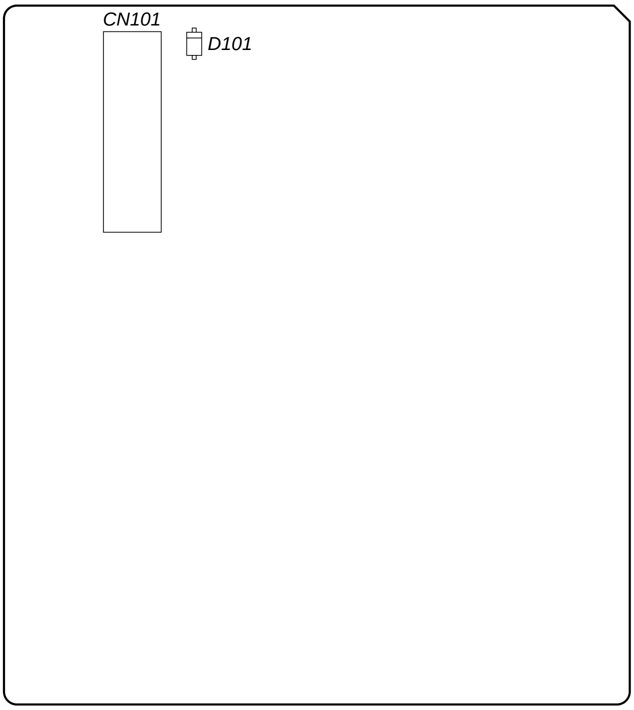
6-16-2. MO Auto Gain Control Output Level Adjustment

Adjusting Procedure :

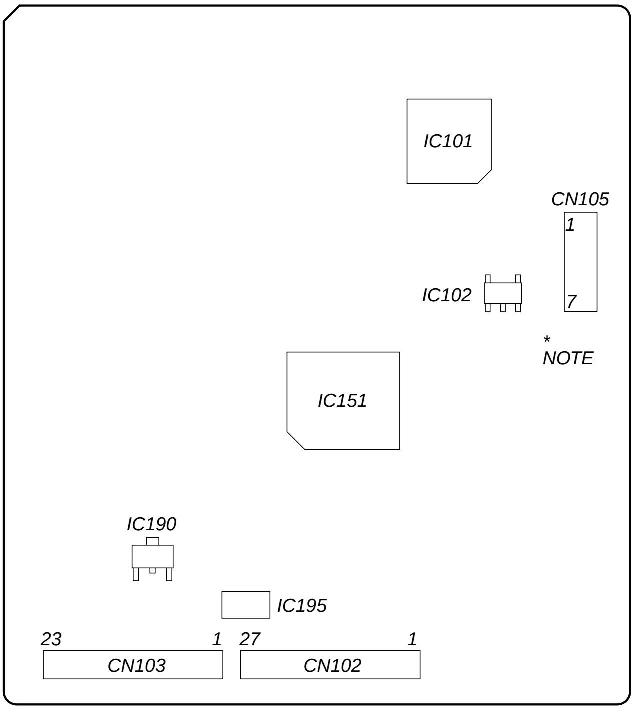
1. Insert the reference disc (MDW-74/GA-1) for recording.
2. Move the multi-stick to display “AG Set (MO)” (C10).
3. When the PUSH ENTER button is pressed, the adjustment will be performed automatically.
   “Complete!” will then be displayed momentarily when the value is recorded in the non-volatile memory, after which the display changes to “AG Set (MO)” (C10).
4. Press the MD ⏏ button while REC IT is off and remove the disc.

6-17. ADJUSTING POINTS AND CONNECTING POINTS

[BD (MD) BOARD] (SIDE A)



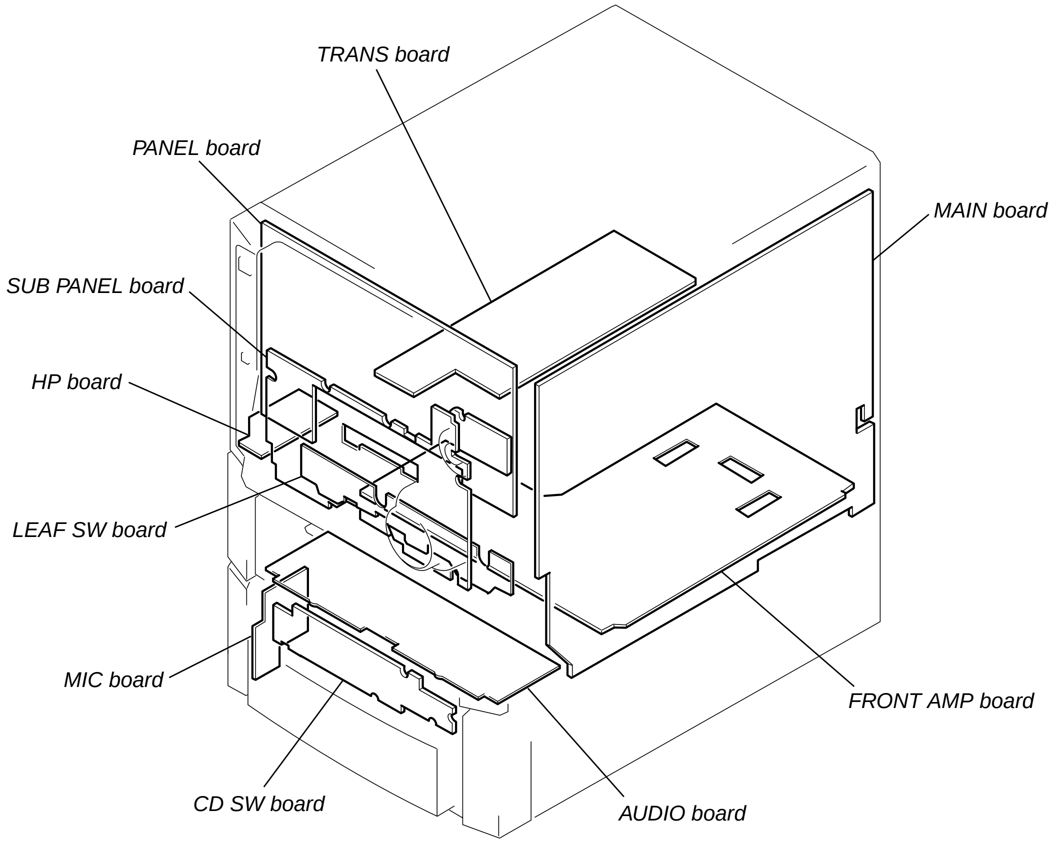
[BD (MD) BOARD] (SIDE B)

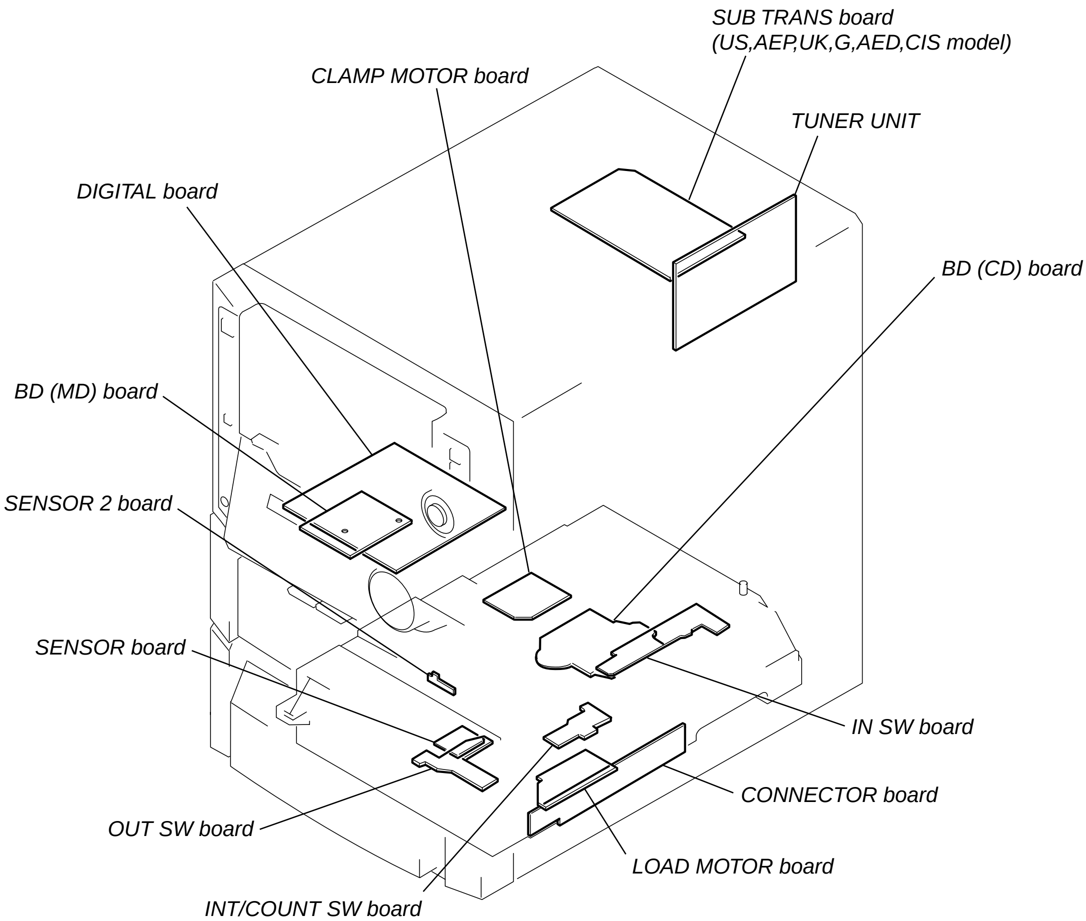


NOTE: It is useful to use the jig. for checking the waveform. (Refer to Servicing Note on page 10.)

SECTION 7
DIAGRAMS

7-1. CIRCUIT BOARDS LOCATION





THIS NOTE IS COMMON FOR PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS.
(In addition to this, the necessary note is printed in each block.)

For schematic diagrams.

Note:

- All capacitors are in μF unless otherwise noted. pF: μμF 50 WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and $^1/_4$ W or less unless otherwise specified.
- △ : internal component.
- : nonflammable resistor.
- : fusible resistor.
- : panel designation.

> **Note:** The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
> Replace only with part number specified.

- B+ : B+ Line.
- B– : B– Line.
- : adjustment for repair.
- Voltages and waveforms are dc with respect to ground under no-signal (detuned) conditions.
- Voltages are taken with a VOM (Input impedance 10 MΩ). Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with a oscilloscope. Voltage variations may be noted due to normal production tolerances.
- Circled numbers refer to waveforms.
- Signal path.
  - : FM
  - : VIDEO/MD (AUDIO)
  - : PB (DECK A)
  - : PB (DECK B)
  - : REC (DECK B)
  - : CD (Analog)
  - : CD/MD (Digital)
  - : MD (PB)
  - : MD (REC)
- Abbreviation

G	: German model
AED	: North European model
MX	: MExican model
AR	: Argentine model
HK	: Hong Kong model
MY	: Malaysia model
SP	: Singapore model
KR	: Korea model
AUS	: Australian model

For printed wiring boards.

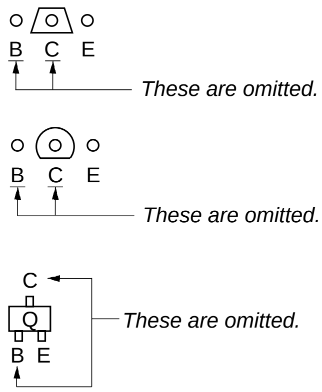
Note:

- : parts extracted from the component side.
- : parts extracted from the conductor side.
- ○ : Through hole.
- : Pattern from the side which enables seeing.

(The other layers' patterns are not indicated.)

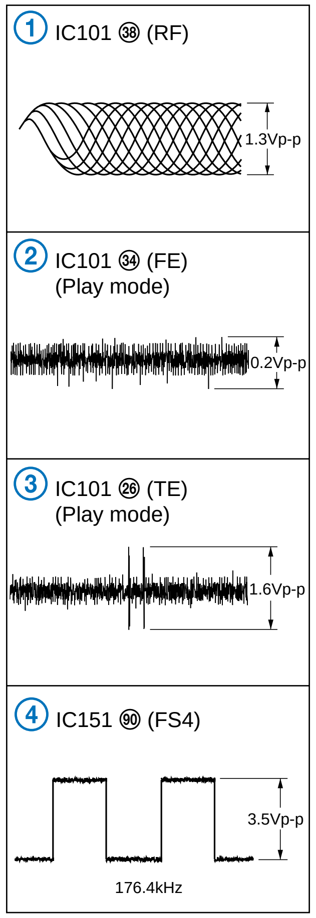
> Caution:
>
> | | |
> |---|---|
> | Pattern face side: (Side B) | Parts on the pattern face side seen from the pattern face are indicated. |
> | Parts face side: (Side A) | Parts on the parts face side seen from the parts face are indicated. |

- **Indication of transistor**

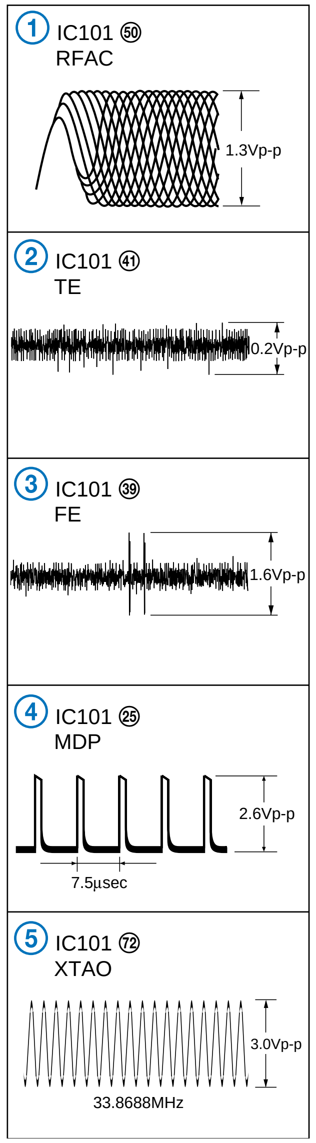


• **WAVEFORMS**

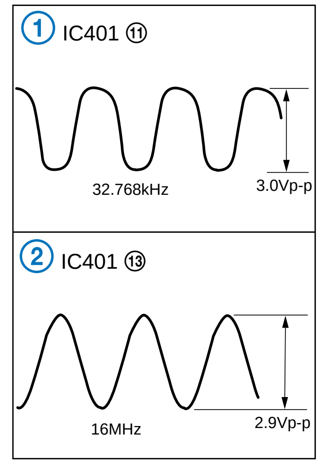
– BD (MD) SECTION –



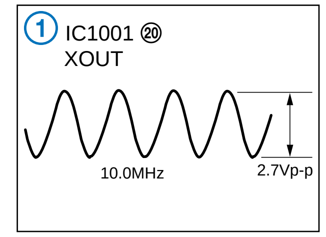
– BD (CD) SECTION –



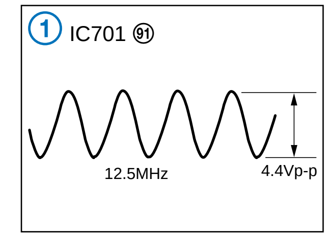
– MAIN SECTION –



– MD DIGITAL SECTION –

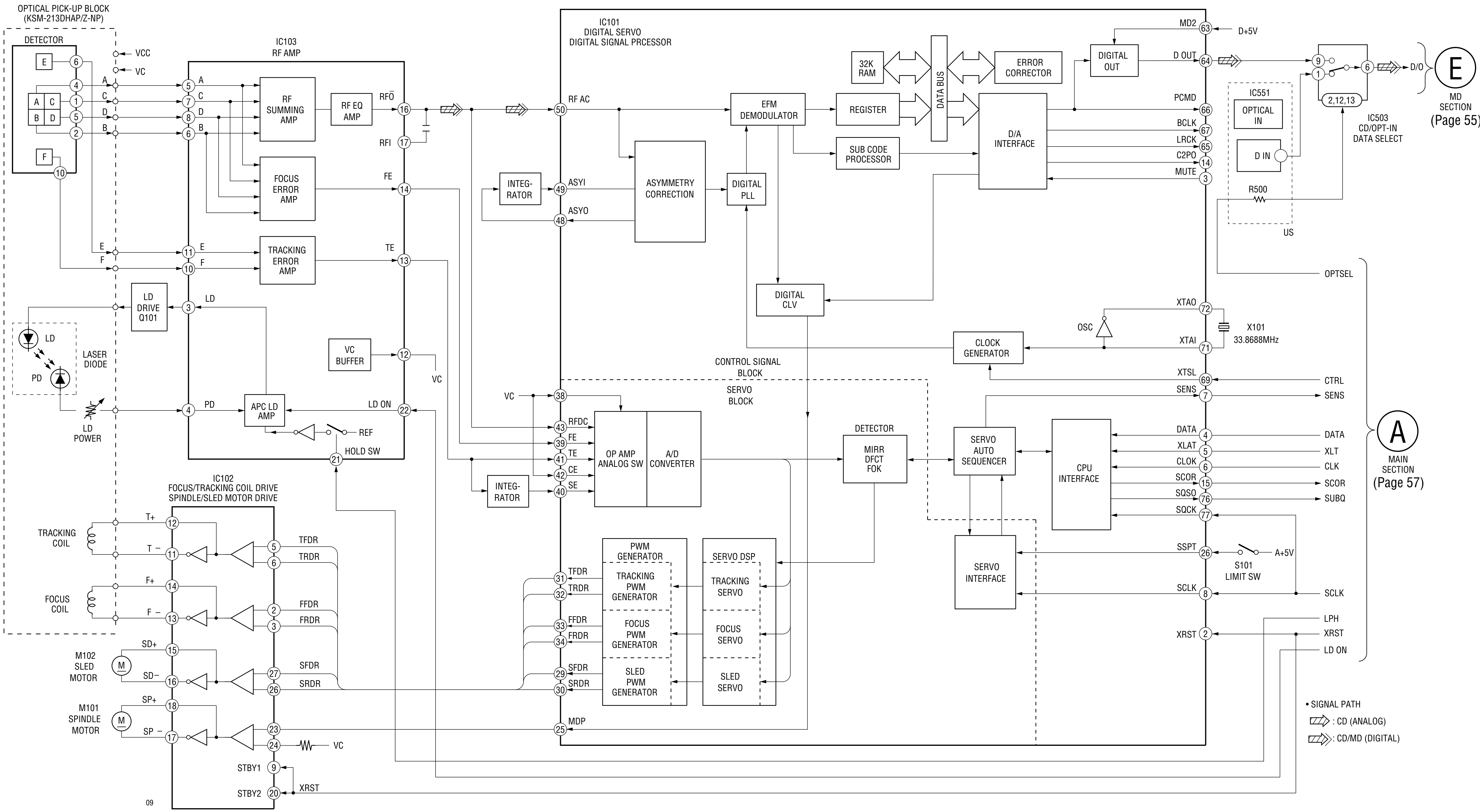


– PANEL SECTION –

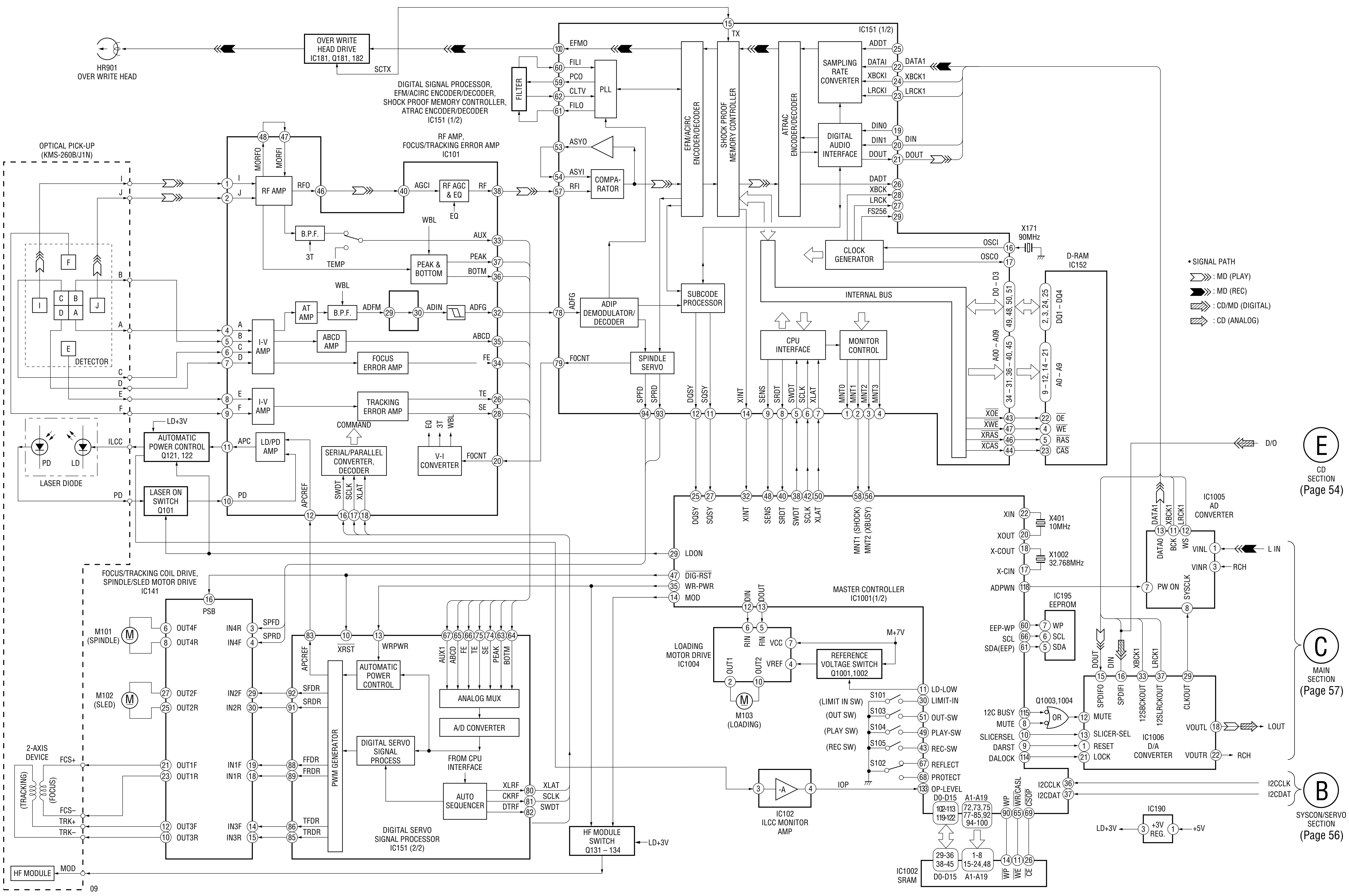


 53

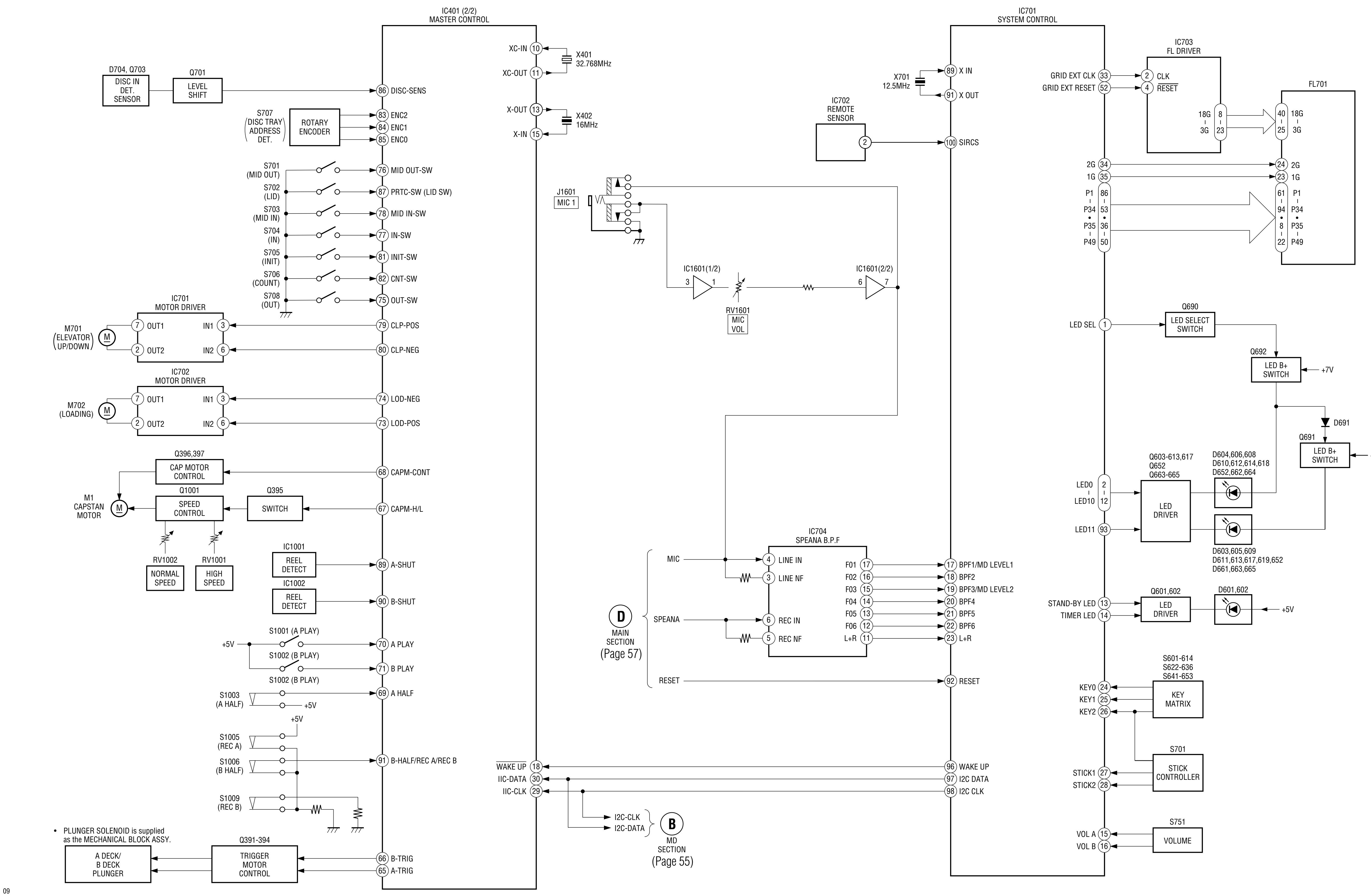
7-2. BLOCK DIAGRAMS
– CD SECTION –



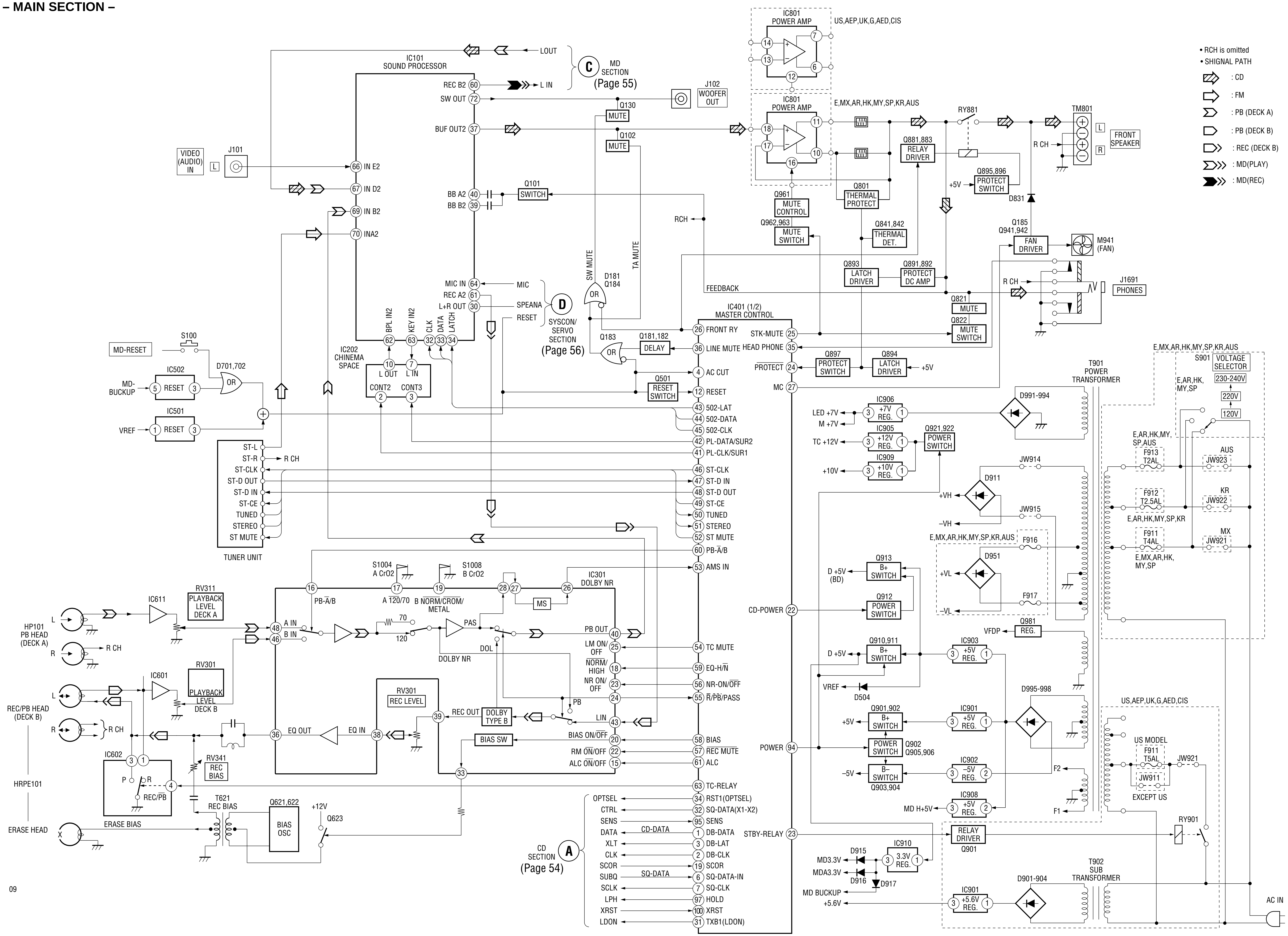
– MD SECTION –


HR901
OVER WRITE HEAD
OVER WRITE HEAD DRIVE IC181, Q181, 182
SCTX
DIGITAL SIGNAL PROCESSOR, EFM/ACIRC ENCODER/DECODER, SHOCK PROOF MEMORY CONTROLLER, ATRAC ENCODER/DECODER IC151 (1/2)
IC151 (1/2)
EFMO
FILI
PCO
CLTV
FILO
FILTER
PLL
ASYO
ASYI
RFI
COMPA-RATOR
EFM/ACIRC ENCODER/DECODER
SHOCK PROOF MEMORY CONTROLLER
ATRAC ENCODER/DECODER
SAMPLING RATE CONVERTER
DIGITAL AUDIO INTERFACE
ADDT
DATAI
XBCKI
LRCKI
DATA1
XBCK1
LRCK1
DIN0
DIN1
DOUT
DIN
DADT
XBCK
LRCK
FS256
TX
CLOCK GENERATOR
OSCI
OSCO
X171 90MHz
D-RAM IC152
INTERNAL BUS
SUBCODE PROCESSOR
ADIP DEMODULATOR/ DECODER
ADFG
FOCNT
SPINDLE SERVO
CPU INTERFACE
MONITOR CONTROL
D0 – D3
DQ1 – DQ4
A00 – A09
A0 – A9
XOE
XWE
XRAS
XCAS
OE
WE
RAS
CAS
SPFD
SPRD
DQSY
SQSY
XINT
SENS
SRDT
SWDT
SCLK
XLAT
MNT0
MNT1
MNT2
MNT3
OPTICAL PICK-UP (KMS-260B/J1N)
DETECTOR
RF AMP
MORFO
MORFI
RFO
RF AMP, FOCUS/TRACKING ERROR AMP IC101
AGCI
RF AGC & EQ
EQ
RF
B.P.F.
3T
TEMP
WBL
AUX
PEAK & BOTTOM
PEAK
BOTM
AT AMP
B.P.F.
ADFM
ADIN
ADFG
I-V AMP
ABCD AMP
ABCD
FOCUS ERROR AMP
FE
TRACKING ERROR AMP
TE
SE
COMMAND
SERIAL/PARALLEL CONVERTER, DECODER
V-I CONVERTER
FOCNT
LD/PD AMP
APC
APCREF
LD+3V
AUTOMATIC POWER CONTROL Q121, 122
ILCC
LASER DIODE
PD
LD
LASER ON SWITCH Q101
• SIGNAL PATH
: MD (PLAY)
: MD (REC)
: CD/MD (DIGITAL)
: CD (ANALOG)
D/O
CD SECTION (Page 54)
IC1005 AD CONVERTER
DATA0
BCK
WS
VINL
VINR
L IN
RCH
PW ON
SYSCLK
XIN
XOUT
X-COUT
X-CIN
X401 10MHz
X1002 32.768MHz
ADPWN
LDON
DIG-RST
WR-PWR
MOD
MNT1 (SHOCK)
MNT2 (XBUSY)
MASTER CONTROLLER IC1001(1/2)
FOCUS/TRACKING COIL DRIVE, SPINDLE/SLED MOTOR DRIVE IC141
PSB
M101 (SPINDLE)
M102 (SLED)
OUT4F
OUT4R
OUT2F
OUT2R
OUT1F
OUT1R
OUT3F
OUT3R
IN4R
IN4F
IN2F
IN2R
IN1F
IN1R
IN3F
IN3R
2-AXIS DEVICE
(TRACKING)
(FOCUS)
FCS+
FCS–
TRK+
TRK–
HF MODULE
09
XRST
WRPWR
AUTOMATIC POWER CONTROL
PWM GENERATOR
SFDR
SRDR
FFDR
FRDR
TFDR
TRDR
DIGITAL SERVO SIGNAL PROCESS
ANALOG MUX
A/D CONVERTER
FROM CPU INTERFACE
AUTO SEQUENCER
XLRF
CKRF
DTRF
DIGITAL SERVO SIGNAL PROCESSOR IC151 (2/2)
HF MODULE SWITCH Q131 – 134
LD+3V
LOADING MOTOR DRIVE IC1004
RIN
FIN
VCC
VREF
OUT1
OUT2
M103 (LOADING)
M+7V
REFERENCE VOLTAGE SWITCH Q1001,1002
LD-LOW
LIMIT-IN
OUT-SW
PLAY-SW
REC-SW
REFLECT
PROTECT
OP-LEVEL
S101 (LIMIT IN SW)
S103 (OUT SW)
S104 (PLAY SW)
S105 (REC SW)
S102
IC102 ILCC MONITOR AMP
IOP
D0-D15
A1-A19
IC1002 SRAM
WP
WE
CE
WR/CASL
CSOP
IC195 EEPROM
EEP-WP
SCL
SDA(EEP)
SDA
12C BUSY
MUTE
SLICERSEL
DARST
DALOCK
Q1003,1004
OR
SLICER-SEL
RESET
LOCK
IC1006 D/A CONVERTER
SPDIFO
SPDIFI
12SBCKOUT
12SLRCKOUT
CLKOUT
VOUTL
VOUTR
LOUT
RCH
MAIN SECTION (Page 57)
I2CCLK
I2CDAT
SYSCON/SERVO SECTION (Page 56)
IC190 +3V REG.
LD+3V
+5V

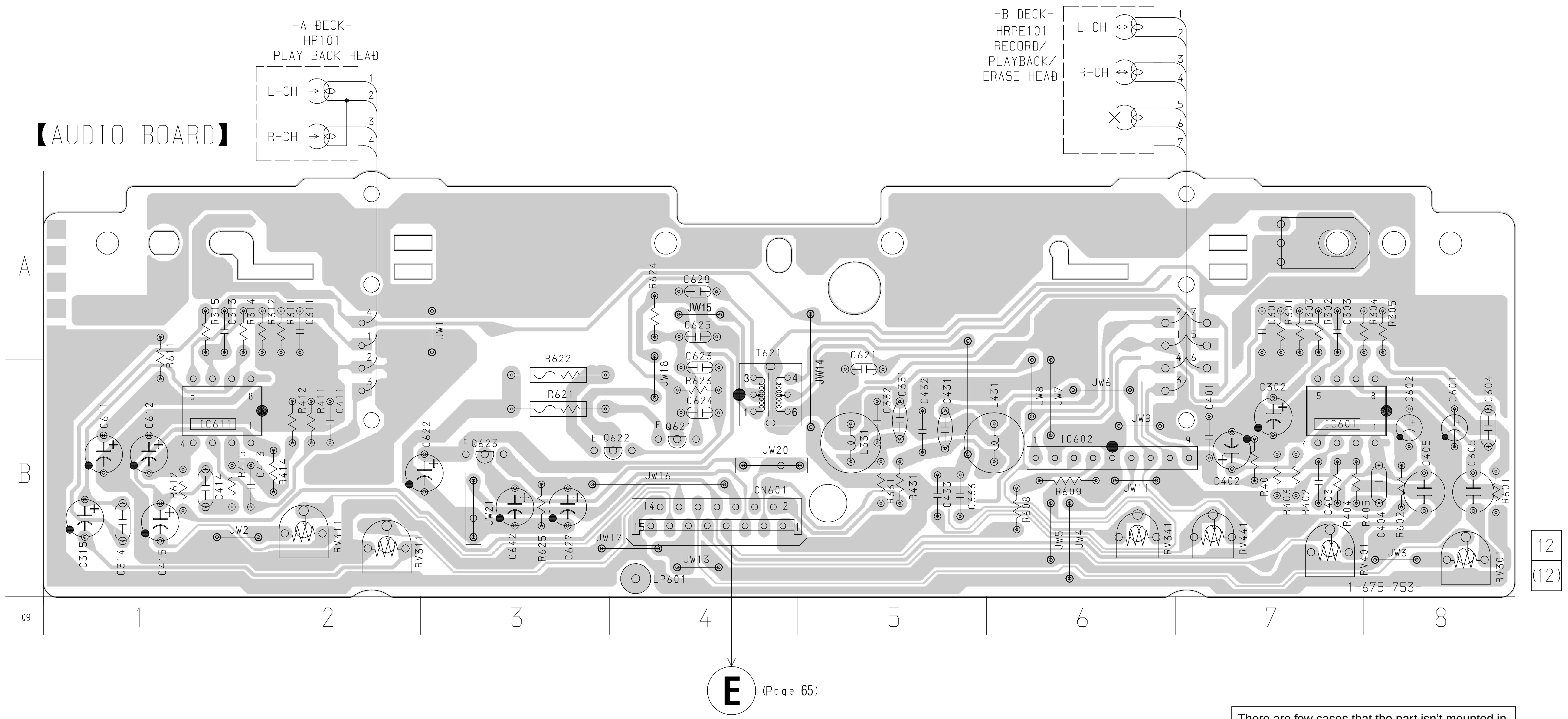
– SYSCON/SERVO SECTION –



– MAIN SECTION –

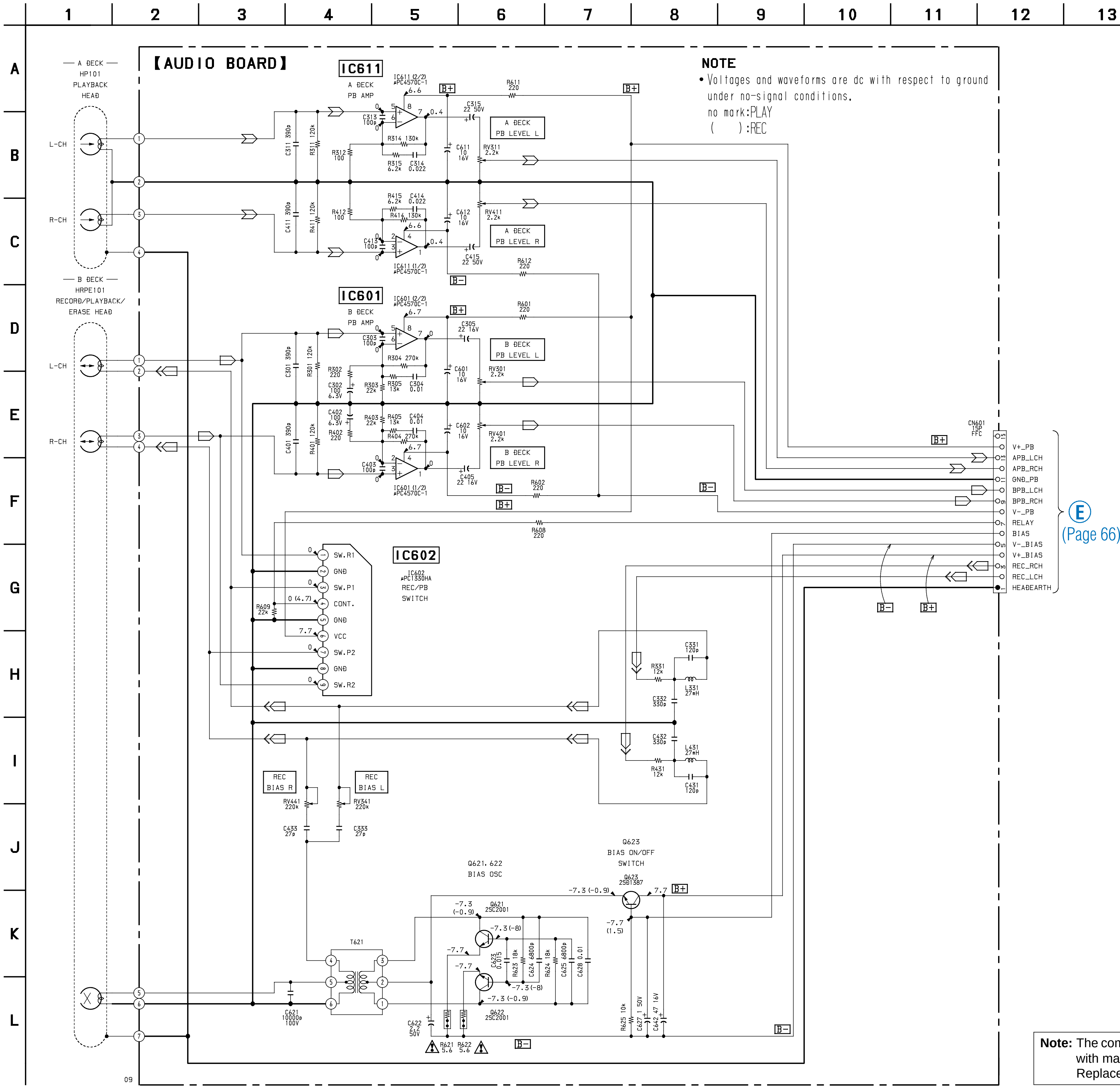


7-3. PRINTED WIRING BOARD – DECK SECTION – • See page 51 for Circuit Boards Location.



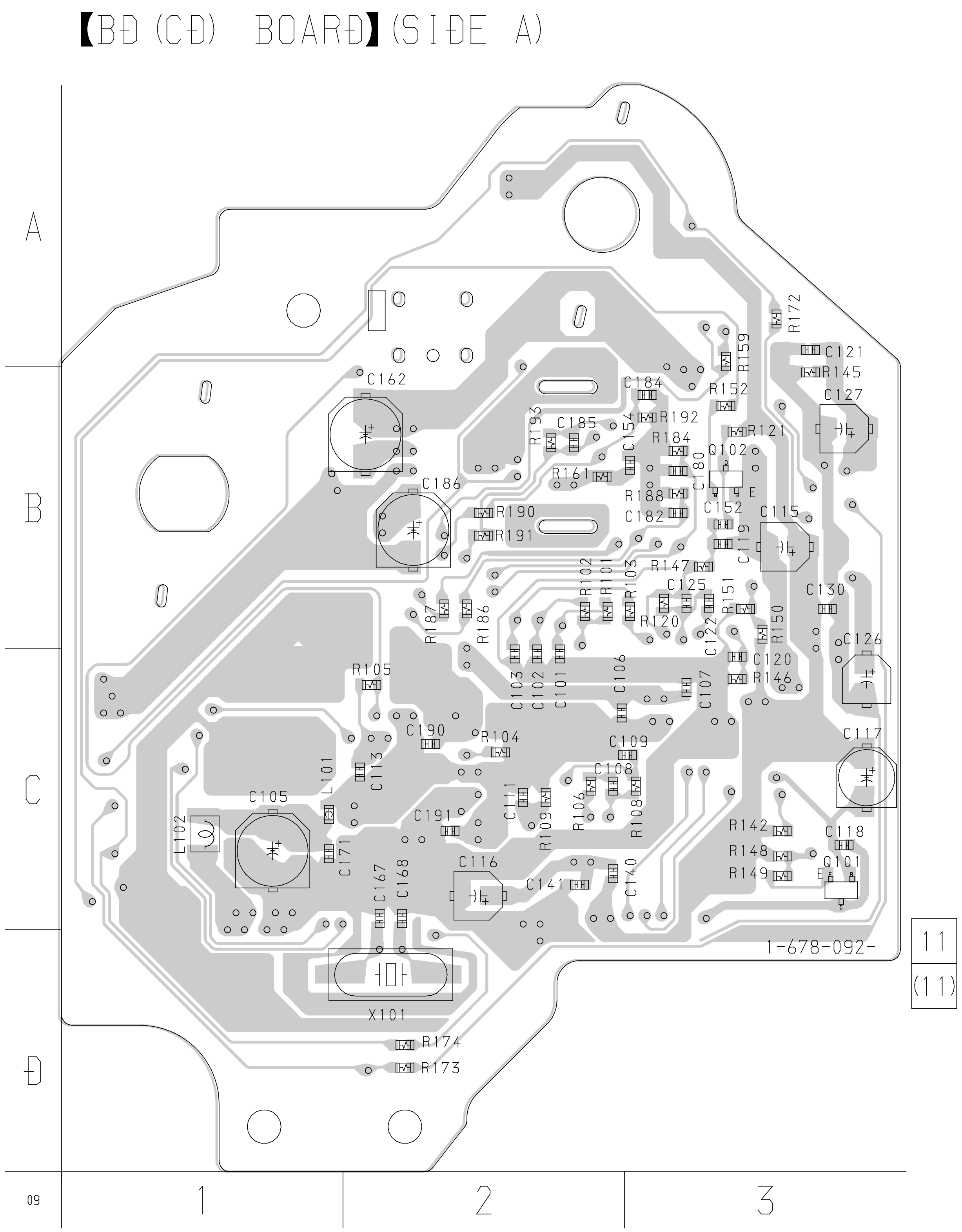
There are few cases that the part isn't mounted in model is printed on diagram.

7-4. SCHEMATIC DIAGRAM – DECK SECTION –



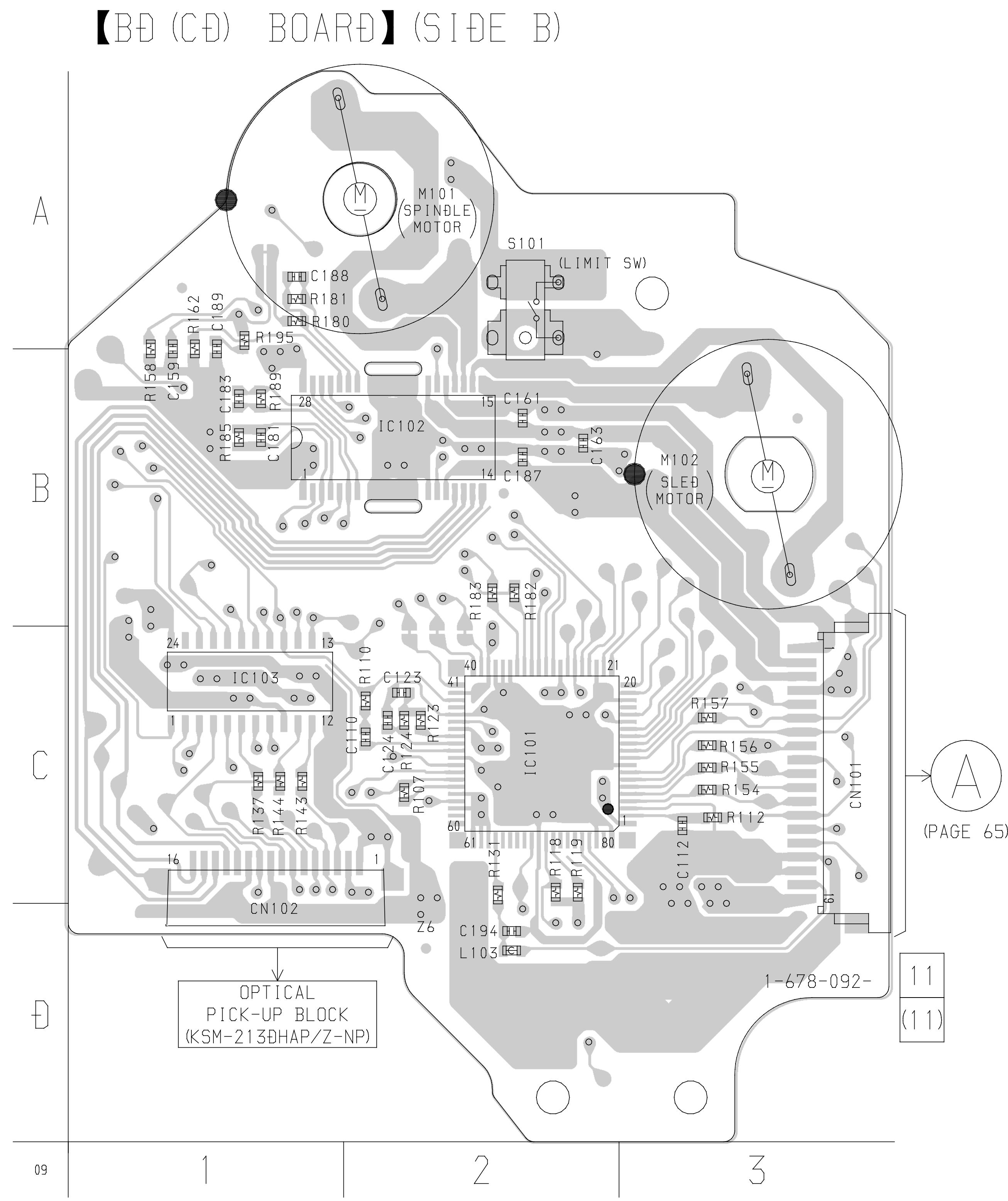
Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

7-5. PRINTED WIRING BOARD – CD SECTION – • See page 51 for Circuit Boards Location.



• Semiconductor Location

Ref. No.	Location
Q101	C-3
Q102	B-3

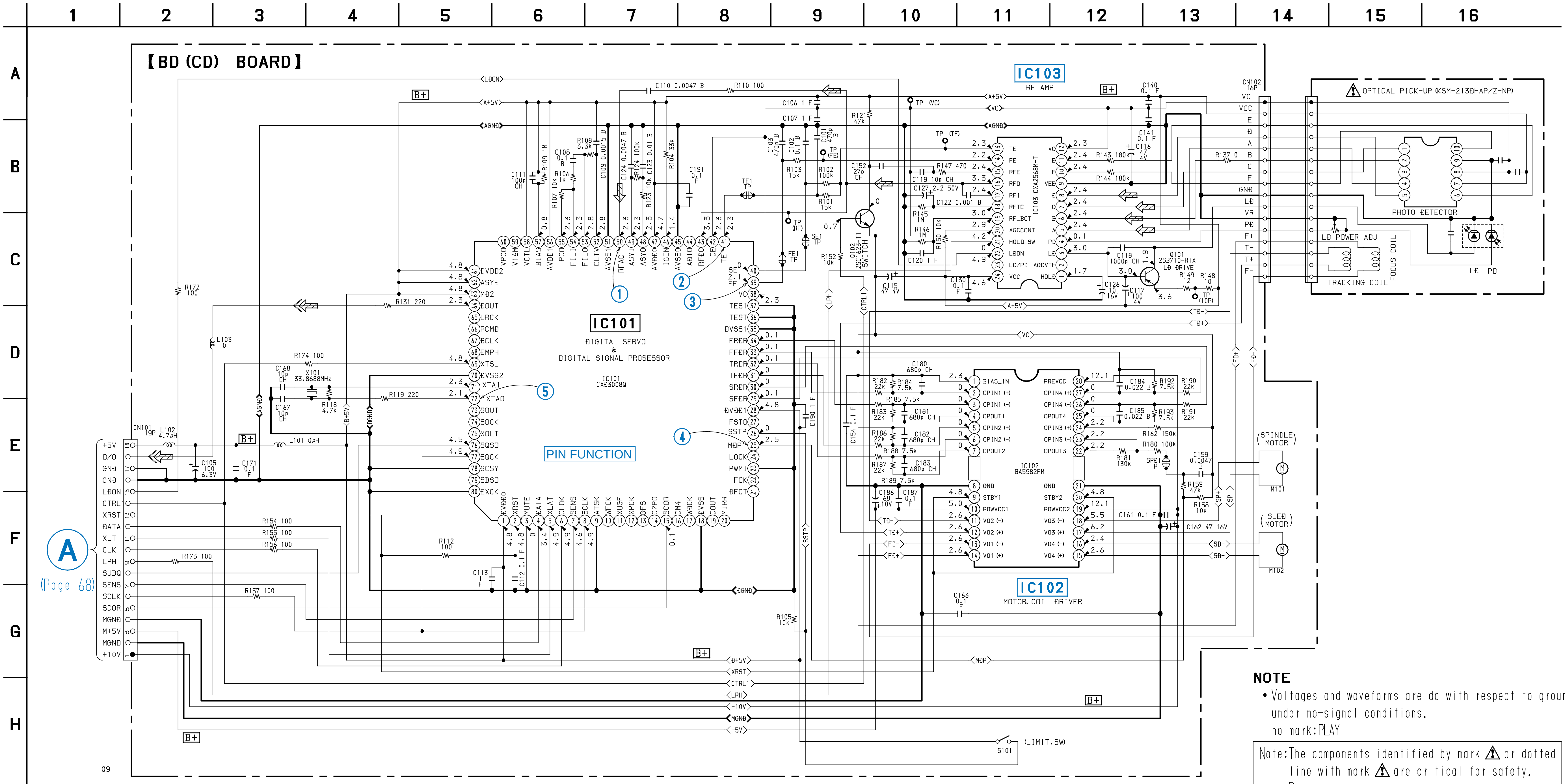


• Semiconductor Location

Ref. No.	Location
IC101	C-2
IC102	B-2
IC103	C-1

There are few cases that the part isn't mounted in model is printed on diagram.

7-6. SCHEMATIC DIAGRAM – CD SECTION – • See page 53 for Waveforms. • See page 91 for IC Block Diagrams. • See page 94 for IC Pin Functions.

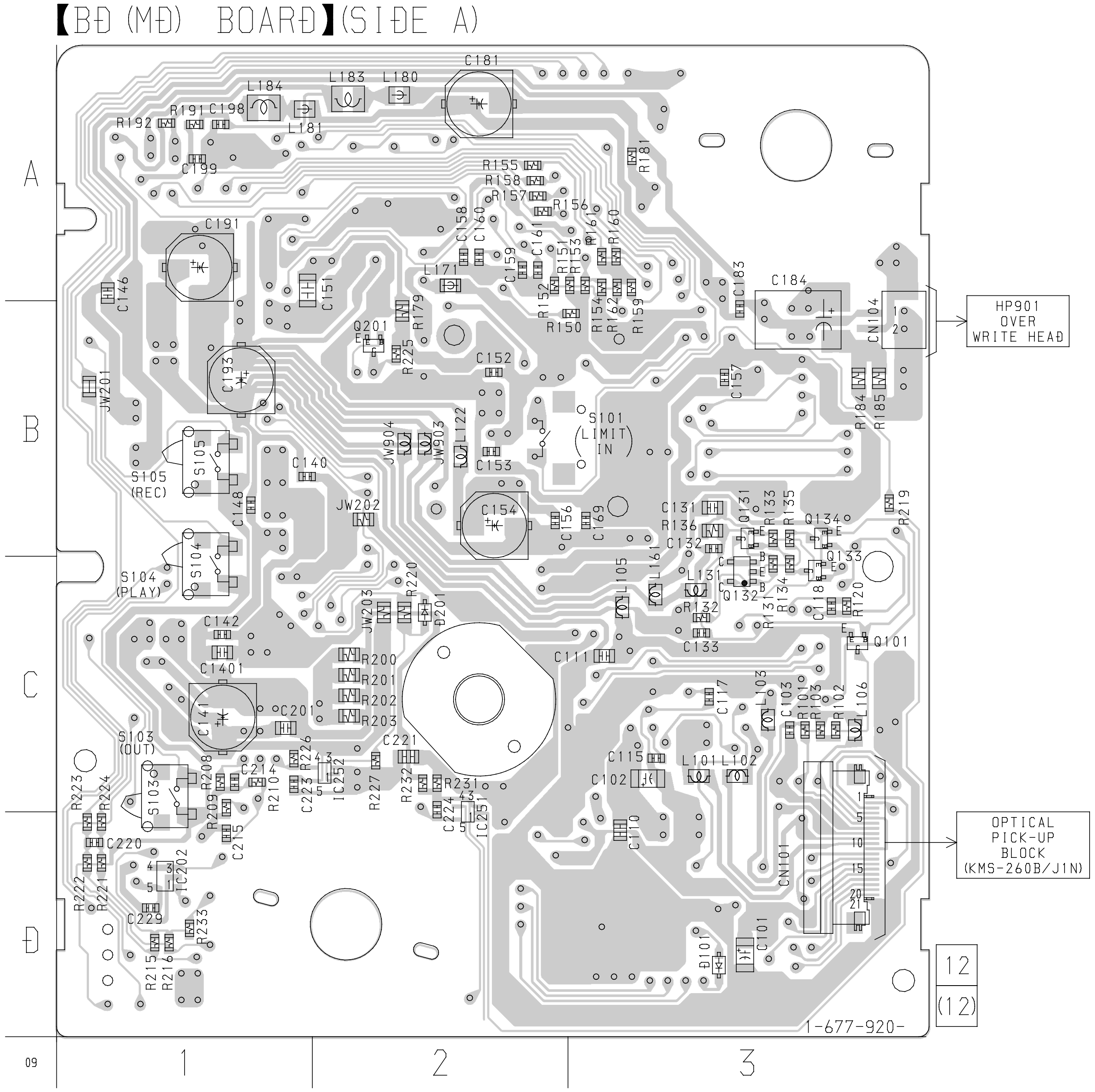


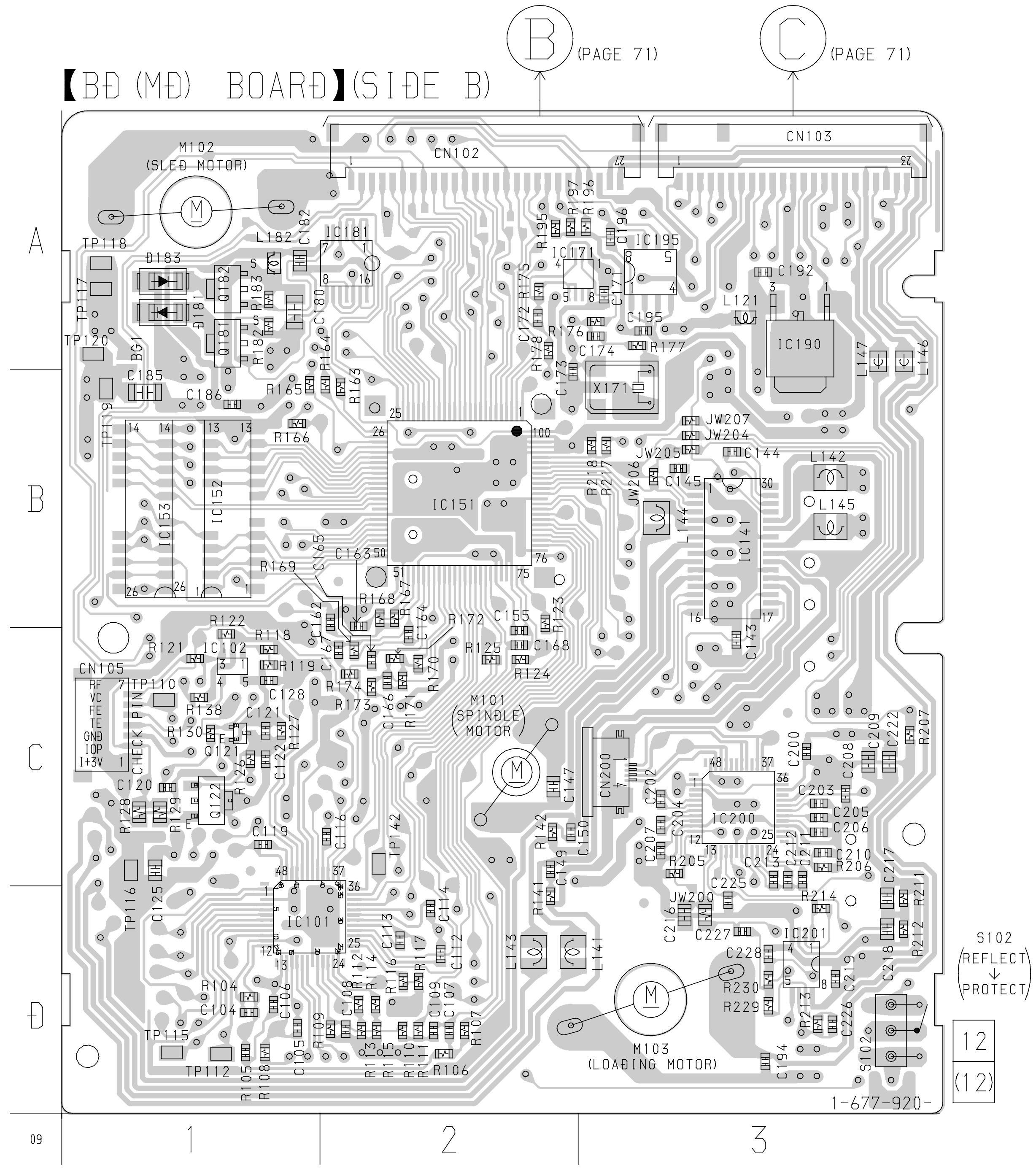
NOTE

- Voltages and waveforms are dc with respect to ground under no-signal conditions.
  no mark:PLAY

Note:The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

7-7. PRINTED WIRING BOARD – MD SECTION – • See page 51 for Circuit Boards Location.





• **Semiconductor Location**

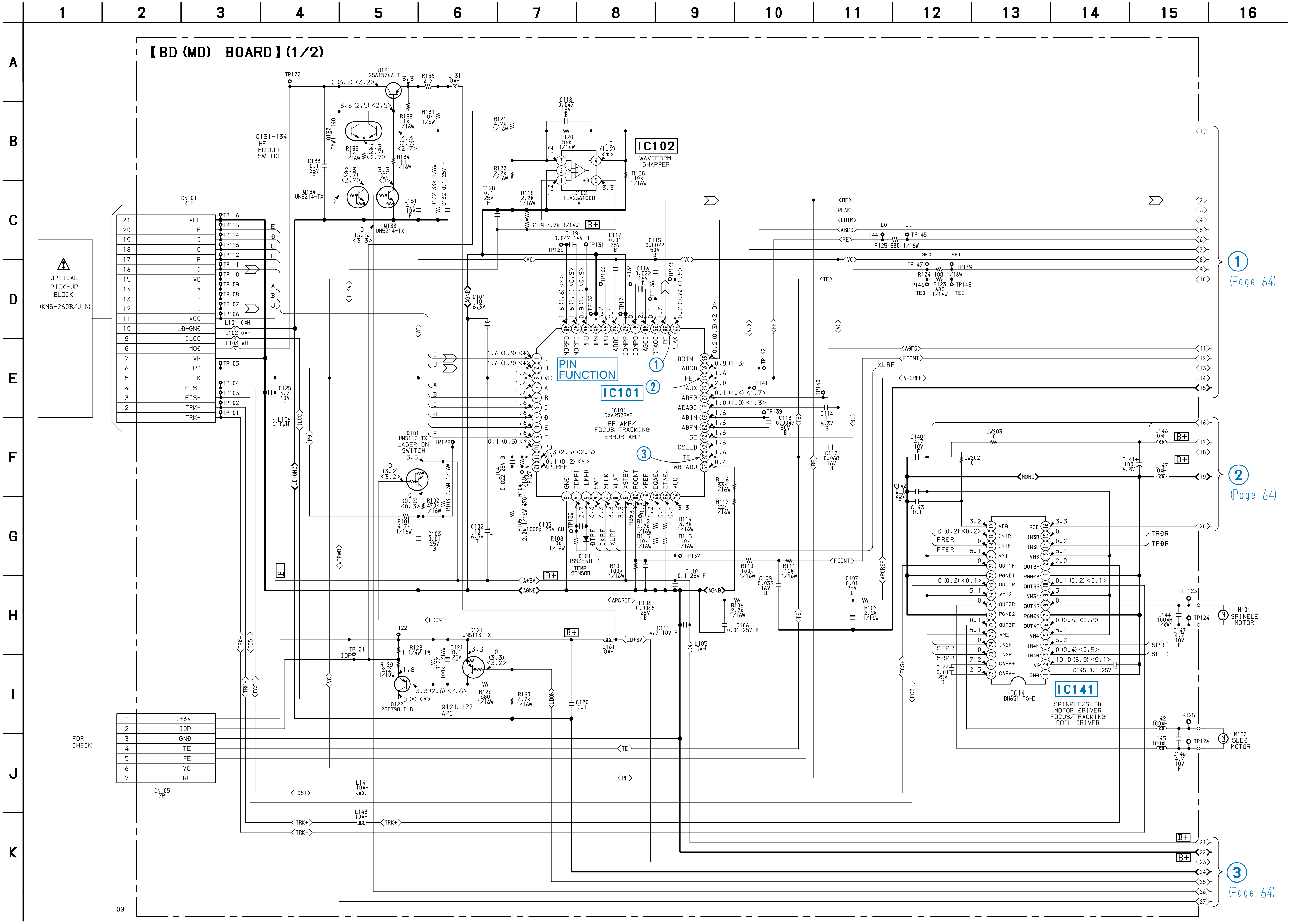
Ref. No.	Location
D101	D-3
Q101	C-3
Q131	B-3
Q132	C-3
Q133	B-3
Q134	B-3

• **Semiconductor Location**

Ref. No.	Location	Ref. No.	Location
D181	A-1	IC181	A-2
D183	A-1	IC190	A-3
		IC195	A-3
IC101	D-1		
IC102	C-1	Q121	C-1
IC141	A-2	Q122	C-1
IC151	B-2	Q181	A-1
IC152	B-1	Q182	A-1

There are few cases that the part isn't mounted in model is printed on diagram.

7-8. SCHEMATIC DIAGRAM – MD (1/2) SECTION – • See page 53 for Waveforms. • See page 90 for IC Block Diagrams. • See page 96 for IC Pin FUnctions.



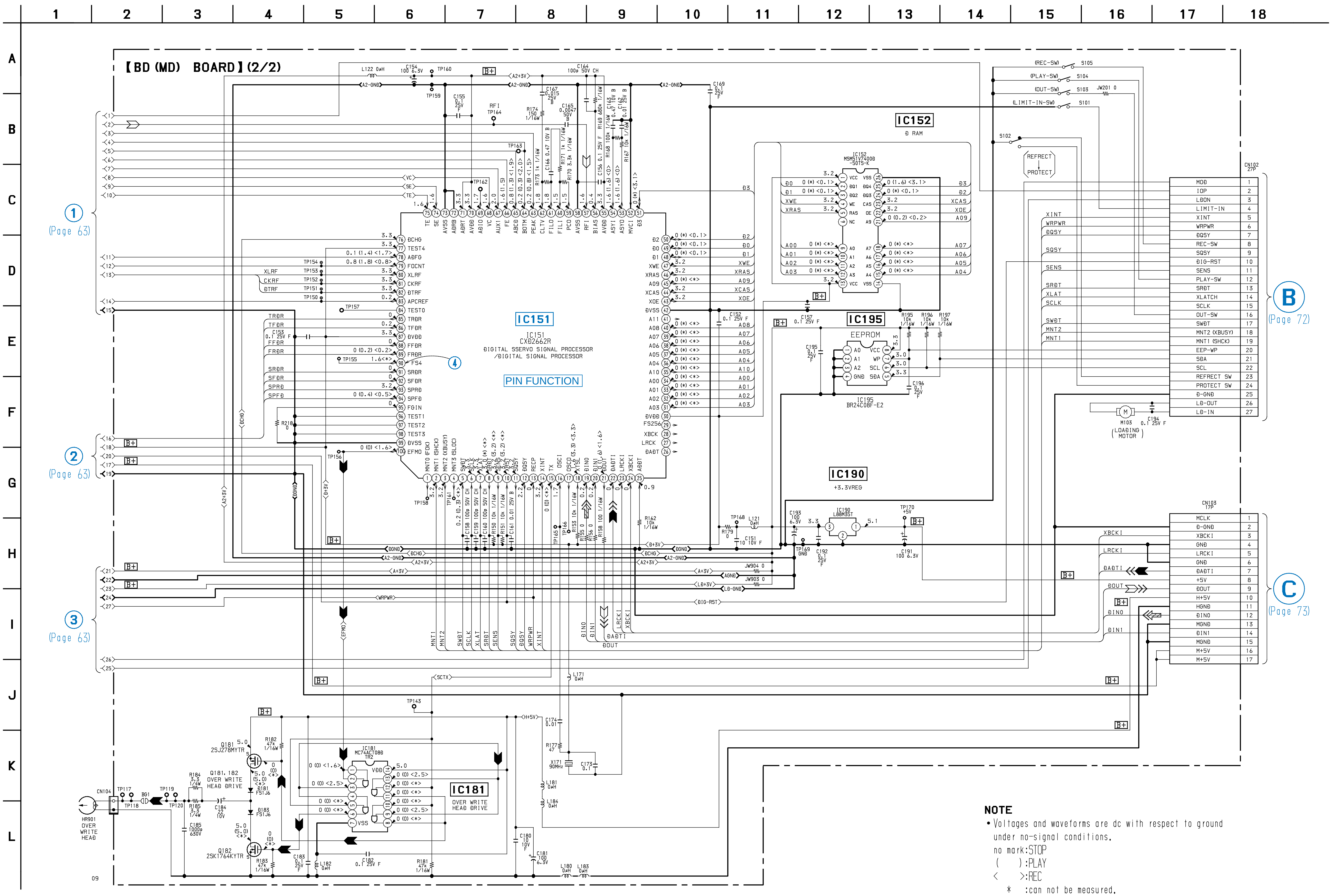
Note:The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

NOTE
• Voltages and waveforms are dc with respect to ground under no-signal conditions.

no mark:STOP
( ) :PLAY
< >:REC
* :can not be measured.

7-9. SCHEMATIC DIAGRAM – MD (2/2) SECTION –

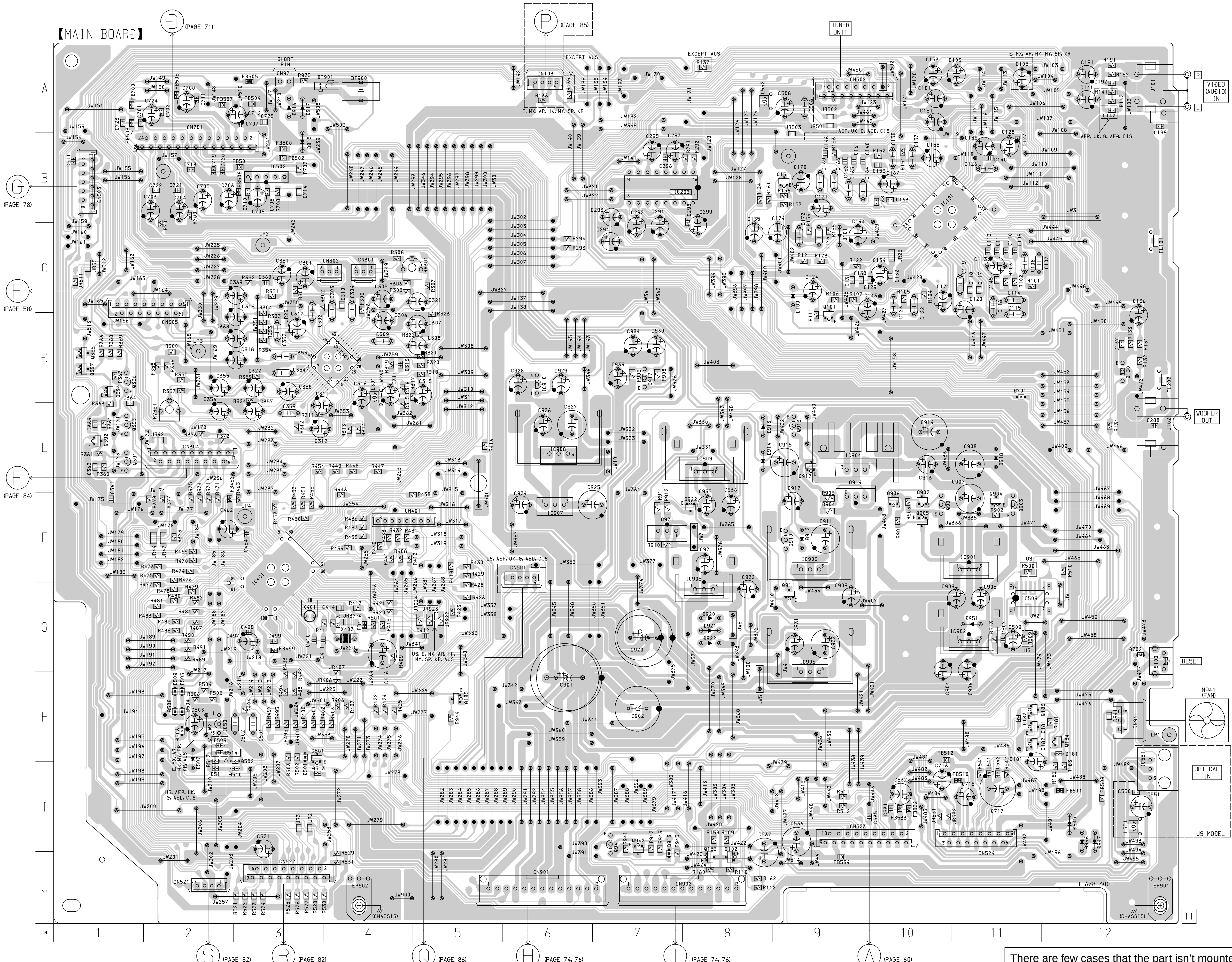
• See page 53 for Waveforms. • See page 90 for IC Block Diagrams. • See page 97 for IC Pin FUnctions. • See page 62 for Printed WIring Board.



NOTE

- Voltages and waveforms are dc with respect to ground under no-signal conditions.
  - no mark:STOP
  - ( ) :PLAY
  - < >:REC
  - * :can not be measured.

7-10. PRINTED WIRING BOARD – MAIN SECTION – • See page 51 for Circuit Boards Location.

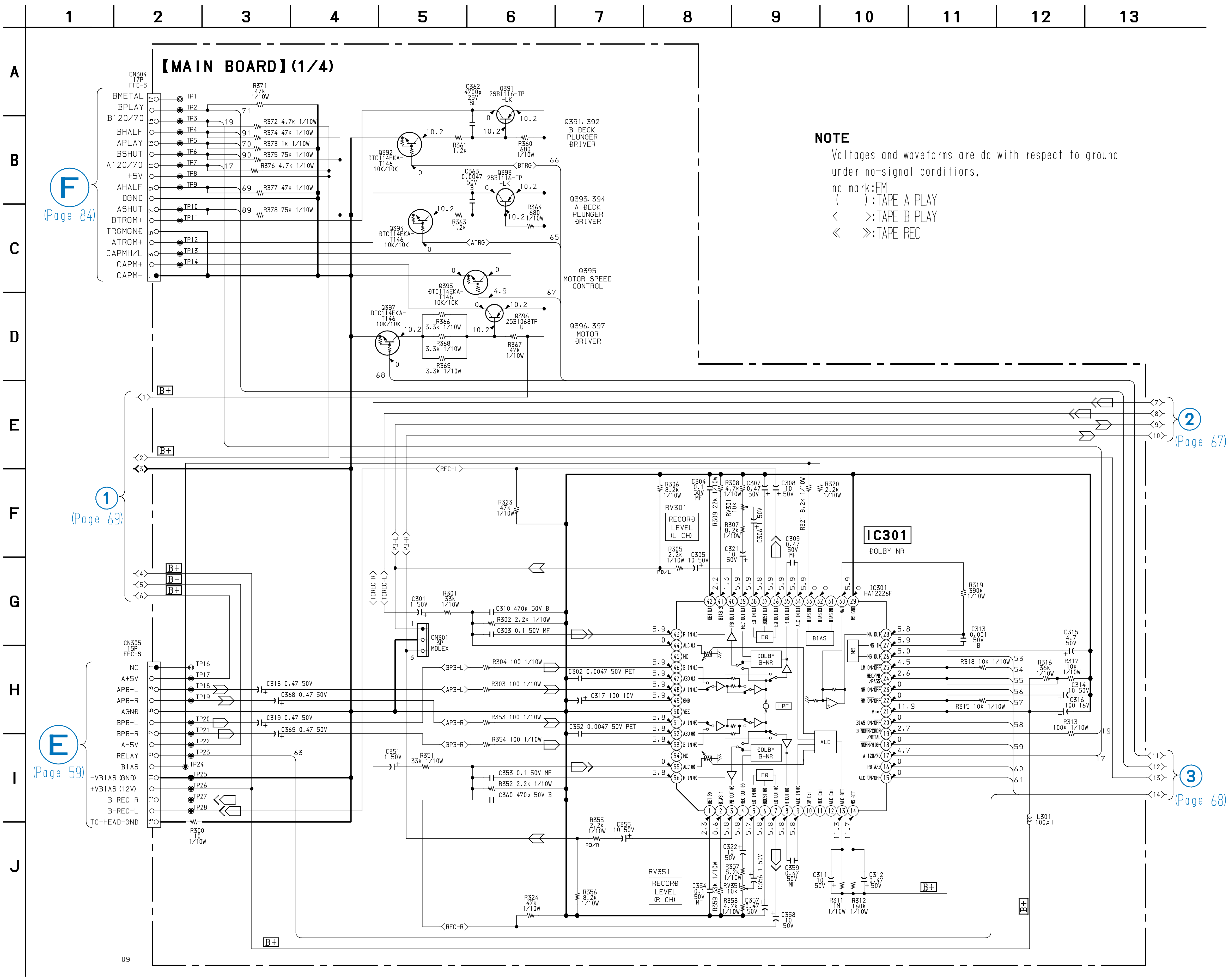


There are few cases that the part isn't mounted in model is printed on diagram.

• Semiconductor Location

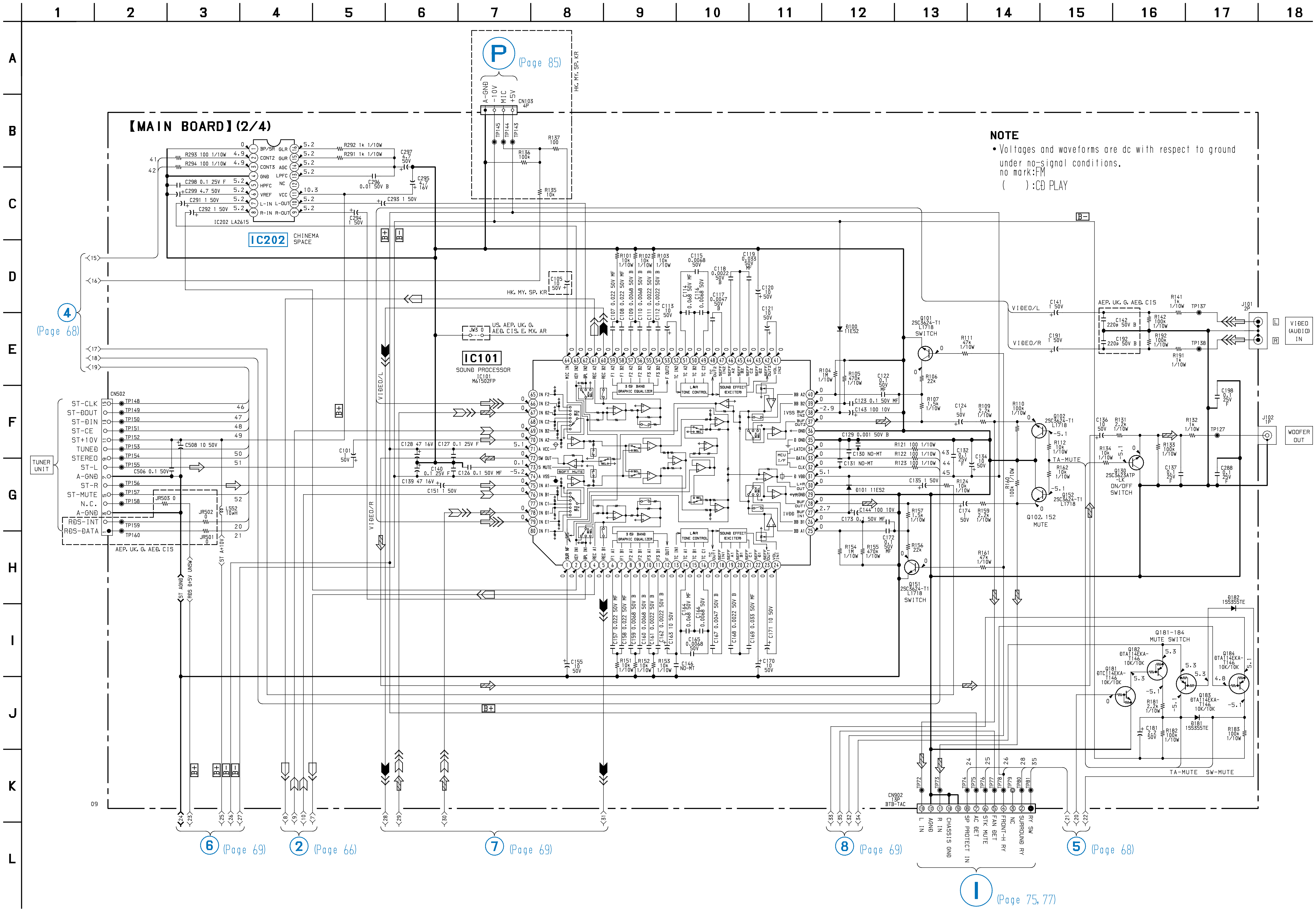
Ref. No.	Location
D100	D-9
D101	C-9
D181	I-12
D182	H-11
D501	H-3
D502	H-3
D503	H-2
D504	H-2
D505	H-2
D506	H-2
D507	H-2
D508	H-2
D509	H-2
D511	I-2
D512	F-9
D513	I-4
D514	H-2
D912	F-9
D913	E-8
D914	E-8
D915	B-3
D916	A-3
D917	A-3
D918	E-11
D919	I-7
D920	G-8
D921	G-8
D922	G-8
D945	I-12
D946	J-12
D947	J-12
D951	G-11
IC101	C-10
IC202	B-7
IC301	D-4
IC401	F-3
IC501	H-2
IC502	B-3
IC503	G-11
IC551	I-12
IC901	G-11
IC902	G-11
IC903	G-9
IC905	F-8
IC906	H-9
IC908	E-6
IC909	E-8
IC910	D-6
Q101	D-9
Q102	I-8
Q130	D-12
Q151	B-9
Q152	I-8
Q181	H-11
Q182	H-11
Q183	H-11
Q184	H-12
Q185	H-5
Q391	E-1
Q392	E-1
Q393	E-1
Q394	D-1
Q395	D-1
Q396	D-1
Q397	D-1
Q501	H-3
Q901	F-10
Q902	F-10
Q903	F-11
Q904	F-11
Q905	F-10
Q906	F-10
Q910	F-9
Q911	G-9
Q912	F-9
Q913	E-9
Q941	I-7
Q942	I-7

7-11. SCHEMATIC DIAGRAM – MAIN (1/4) SECTION – • See page 65 for Printed WIring Board.



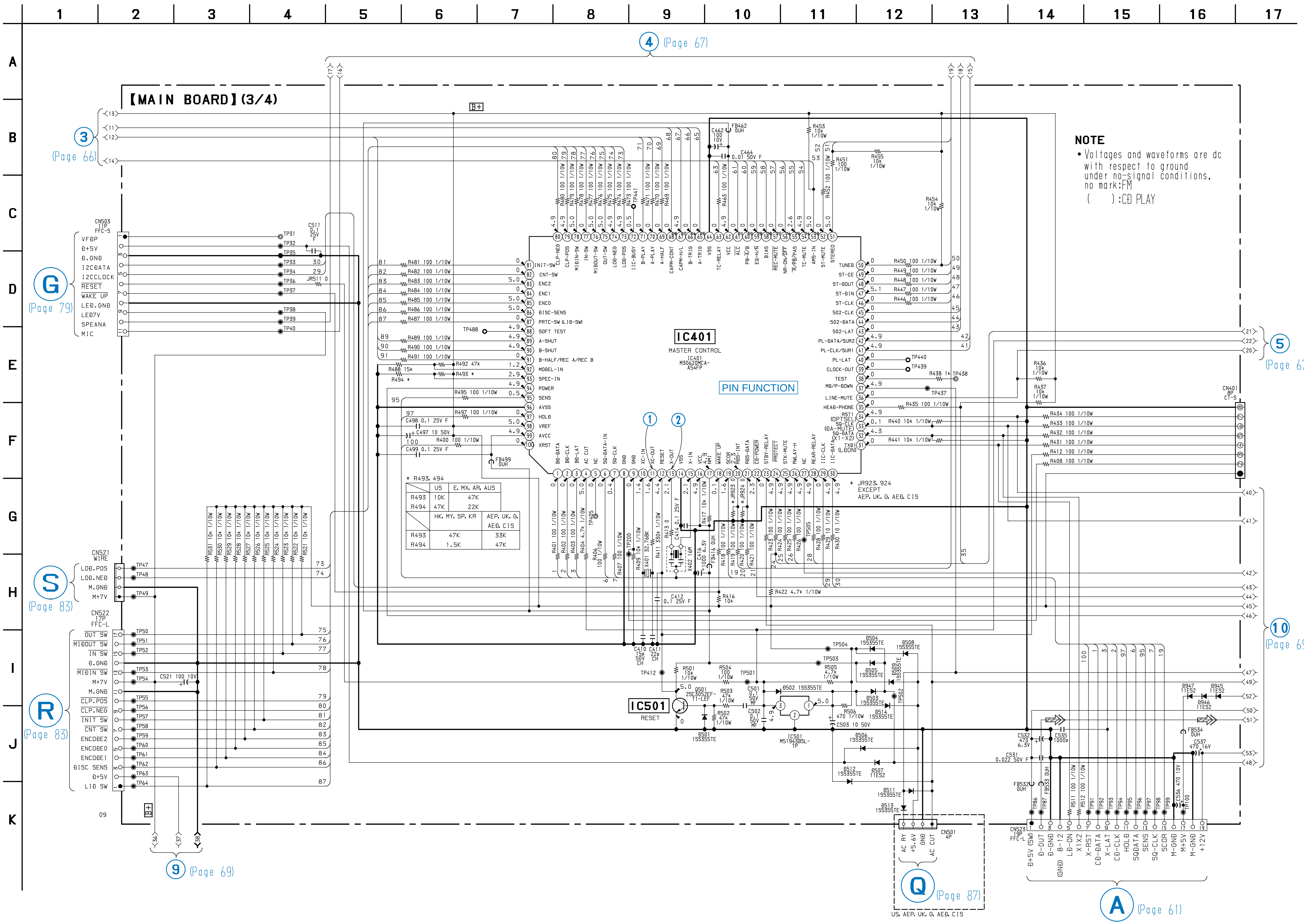
NOTE
Voltages and waveforms are dc with respect to ground under no-signal conditions.
no mark:FM
( ):TAPE A PLAY
< >:TAPE B PLAY
《 》:TAPE REC

7-12. SCHEMATIC DIAGRAM – MAIN (2/4) SECTION – • See page 65 for Printed WIring Board.



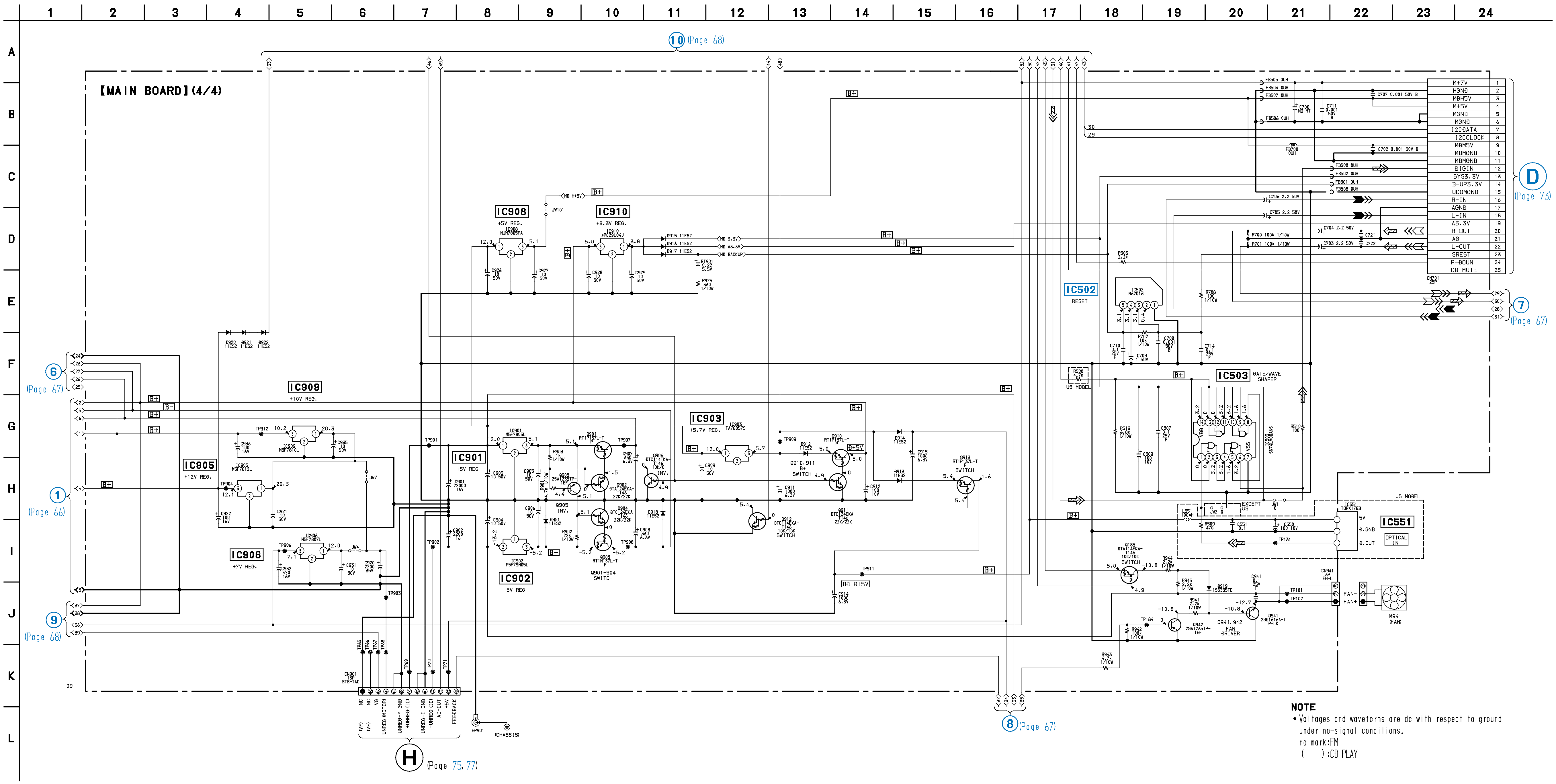
7-13. SCHEMATIC DIAGRAM – MAIN (3/4) SECTION –

• See page 53 for Waveforms. • See page 102 for IC Pin Functions. • See page 91 for IC Block Diagrams. • See page 65 for Printed WIring Board.

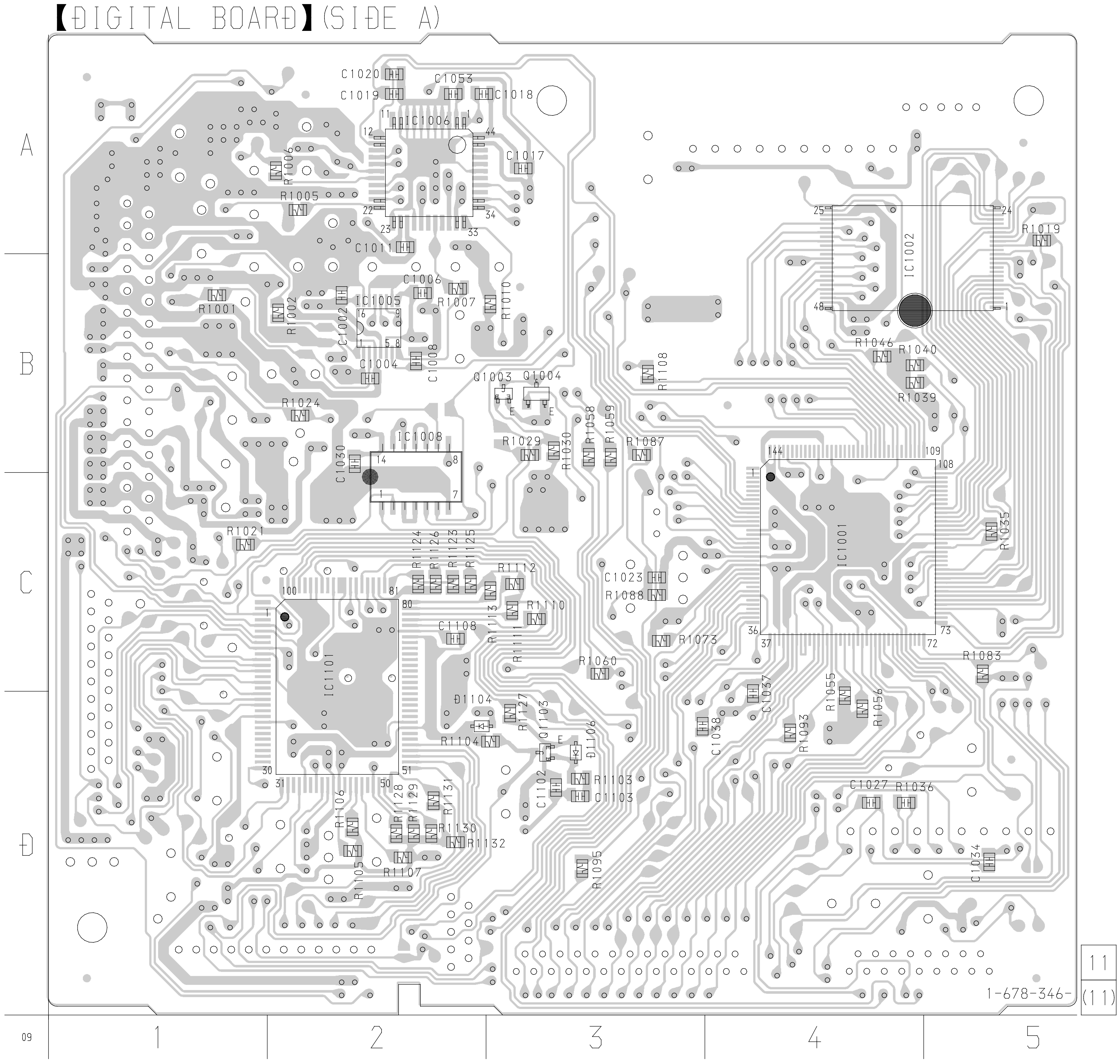


	US	E, MX, AR, AUS
R493	10K	47K
R494	47K	22K
	HK, MY, SP, KR	AEP, UK, G, AEĐ, CIS
R493	47K	33K
R494	1.5K	47K

7-14. SCHEMATIC DIAGRAM – MAIN (4/4) SECTION – • See page 91 for IC Block Diagrams. • See page 65 for Printed Wiring Board.



7-15. PRINTED WIRING BOARD – DIGITAL (SIDE A) SECTION – • See page 51 for Circuit Boards Location.

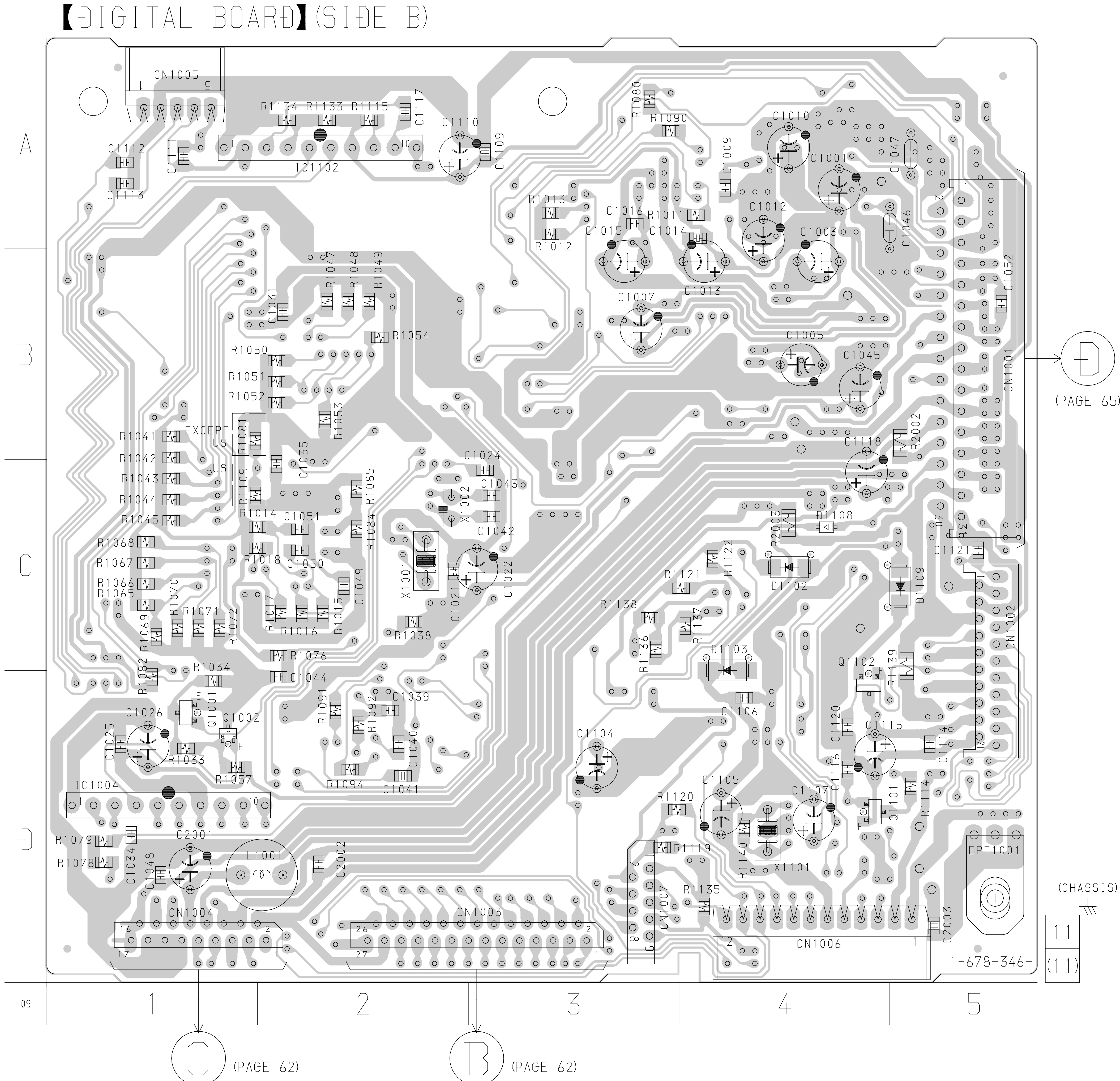


• Semiconductor Location

Ref. No.	Location
IC1001	C-4
IC1002	B-4
IC1005	B-2
IC1006	A-2
Q1003	B-3
Q1004	B-3

There are few cases that the part isn't mounted in model is printed on diagram.

7-16. PRINTED WIRING BOARD – DIGITAL (SIDE B) SECTION – • See page 51 for Circuit Boards Location.



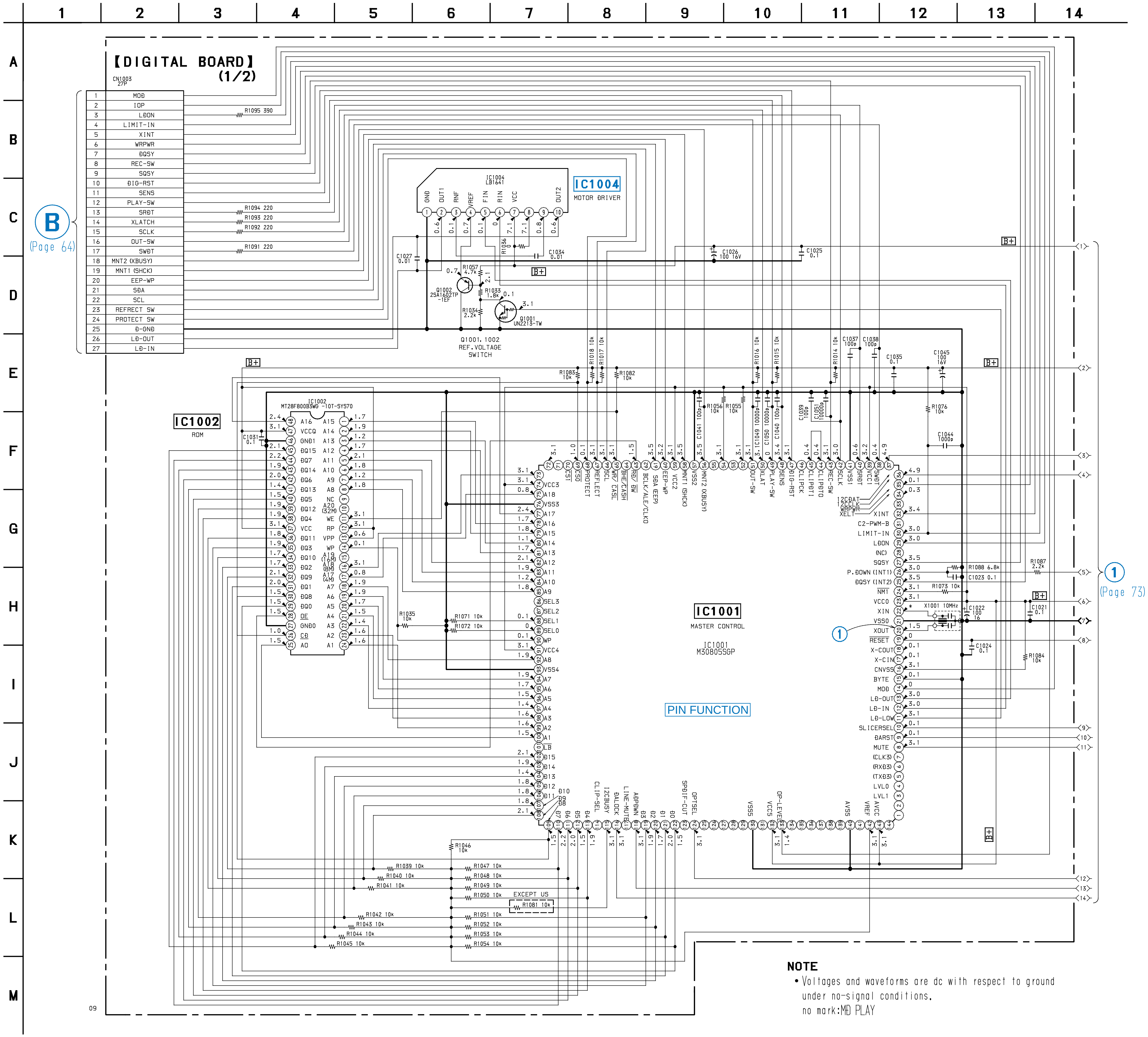
• Semiconductor Location

Ref. No.	Location
IC1004	D-1
Q1001	D-1
Q1002	D-1

There are few cases that the part isn't mounted in model is printed on diagram.

7-17. SCHEMATIC DIAGRAM – DIGITAL (1/2) SECTION –

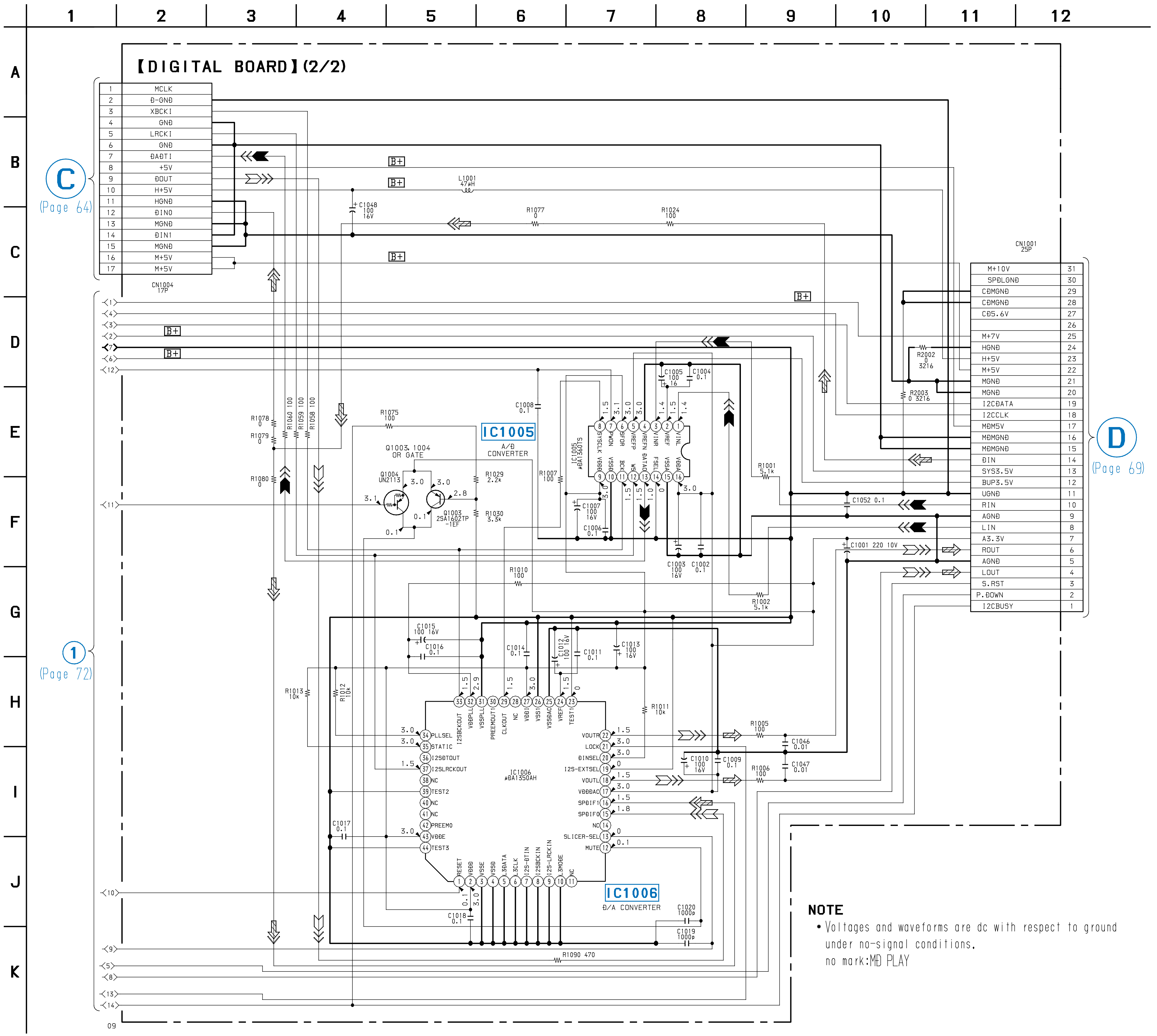
• See page 53 for Waveforms. • See page 92 for IC Block Diagrams. • See page 100 for IC Pin Functions. • See page 70 for Printed Wiring Board.



NOTE

- Voltages and waveforms are dc with respect to ground under no-signal conditions.
  no mark: MD PLAY

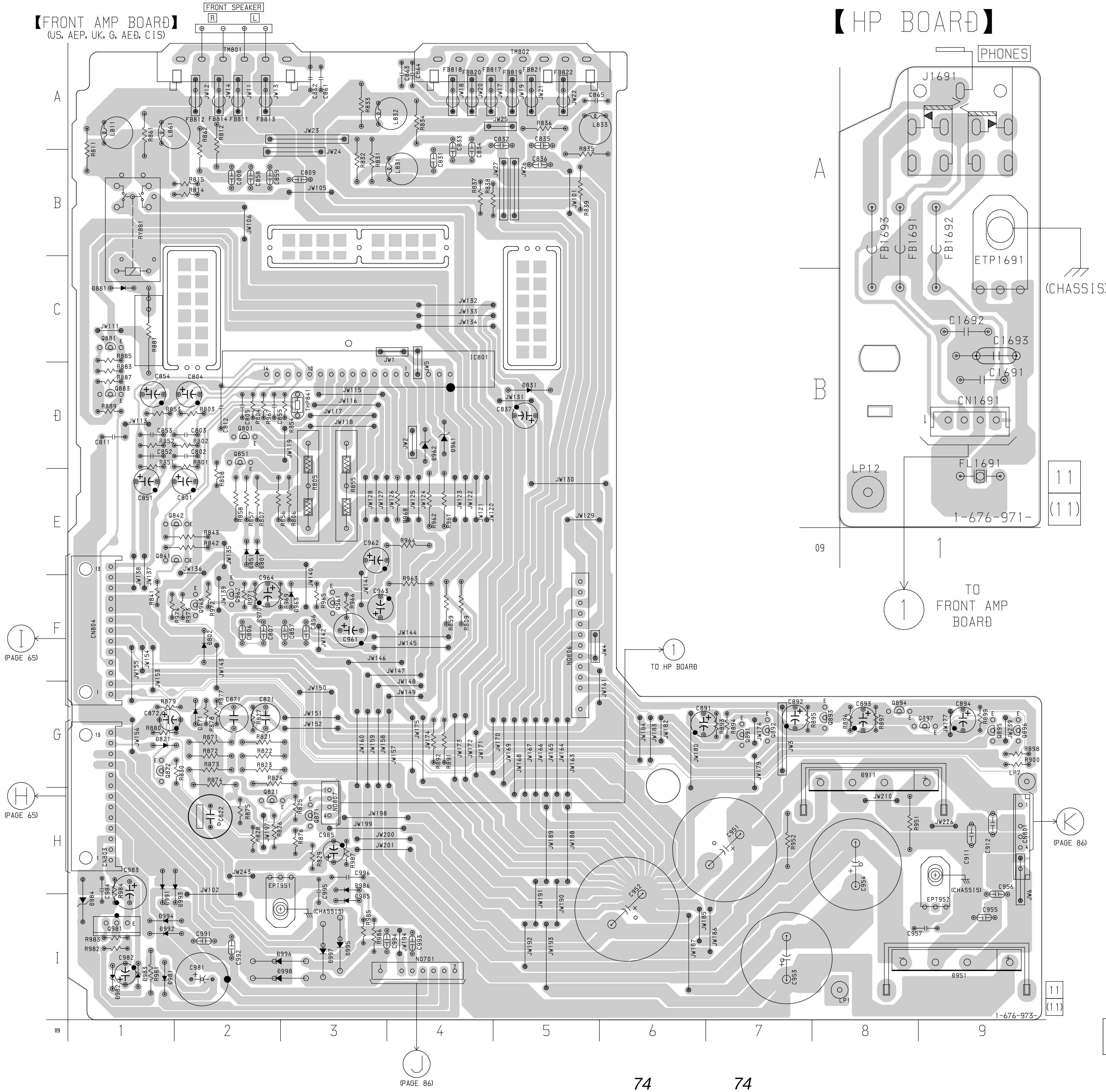
7-18. SCHEMATIC DIAGRAM – DIGITAL (2/2) SECTION – • See page 92 for IC Block Diagrams. • See page 70 for Printed Wiring Board.



NOTE

- Voltages and waveforms are dc with respect to ground under no-signal conditions.
  no mark:MD PLAY

7-19. PRINTED WIRING BOARD – AMP (US, AEP, UK, G, AED, CIS model) SECTION – **• See page 51 for Circuit Boards Location.**

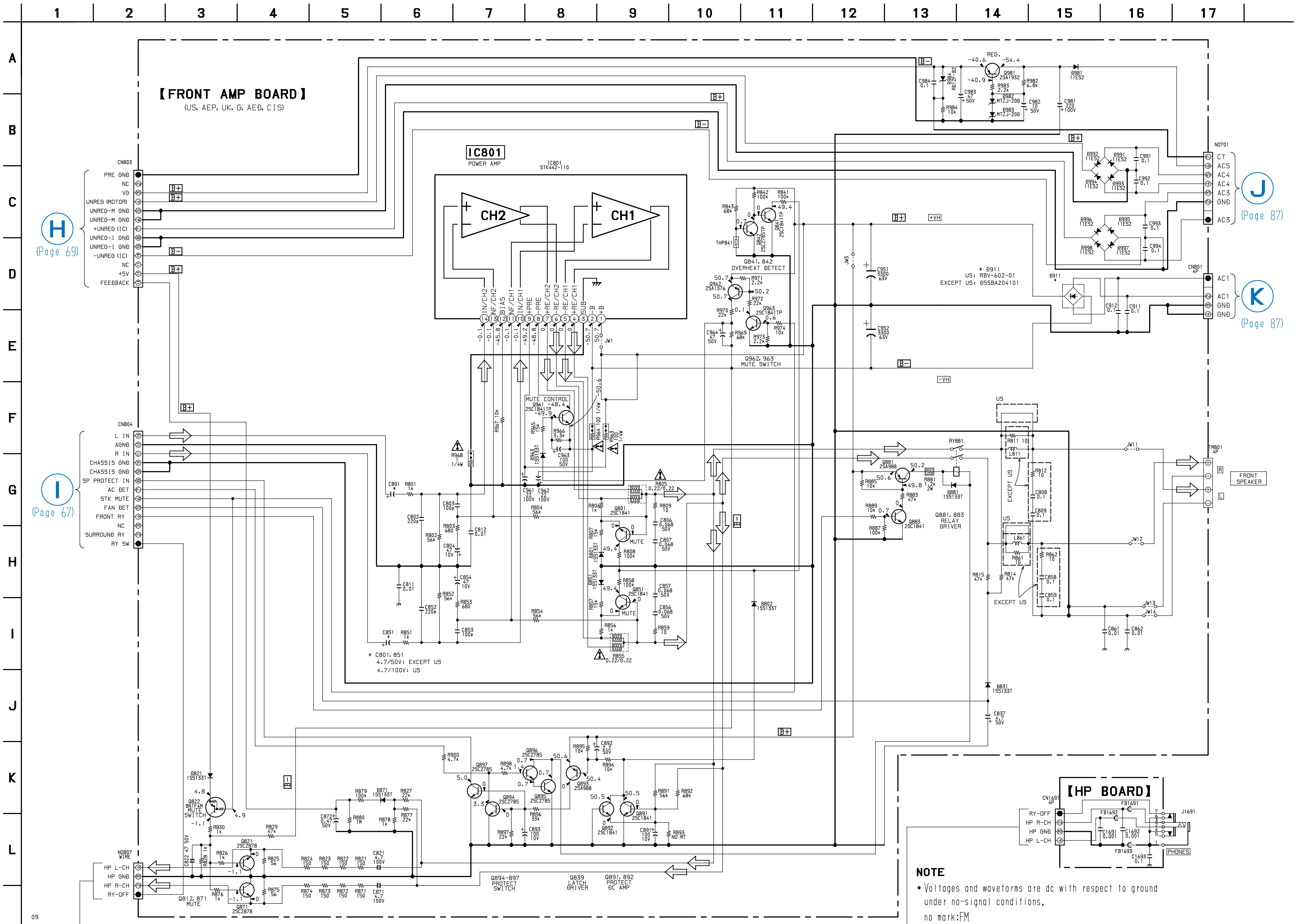


• Semiconductor Location

Ref. No.	Location
D801	E-2
D802	F-2
D821	G-1
D831	D-5
D851	E-2
D871	G-2
D881	C-1
D911	G-8
D963	F-3
D981	I-1
D982	I-1
D983	I-1
D984	I-1
D991	H-1
D992	I-1
D993	H-1
D994	I-1
D995	I-3
D996	I-2
D997	I-3
D998	I-2
IC801	D-4
Q801	D-2
Q821	H-2
Q822	G-1
Q841	E-1
Q842	E-1
Q851	D-2
Q871	H-3
Q881	C-1
Q883	D-1
Q891	G-7
Q892	G-7
Q893	G-8
Q894	G-8
Q895	G-9
Q896	G-9
Q897	G-9
Q961	F-3
Q962	F-2
Q963	F-2
Q981	I-1

There are few cases that the part isn't mounted in model is printed on diagram.

7-20. SCHEMATIC DIAGRAM – AMP (US, AEP, UK, G, AED, CIS model) SECTION –

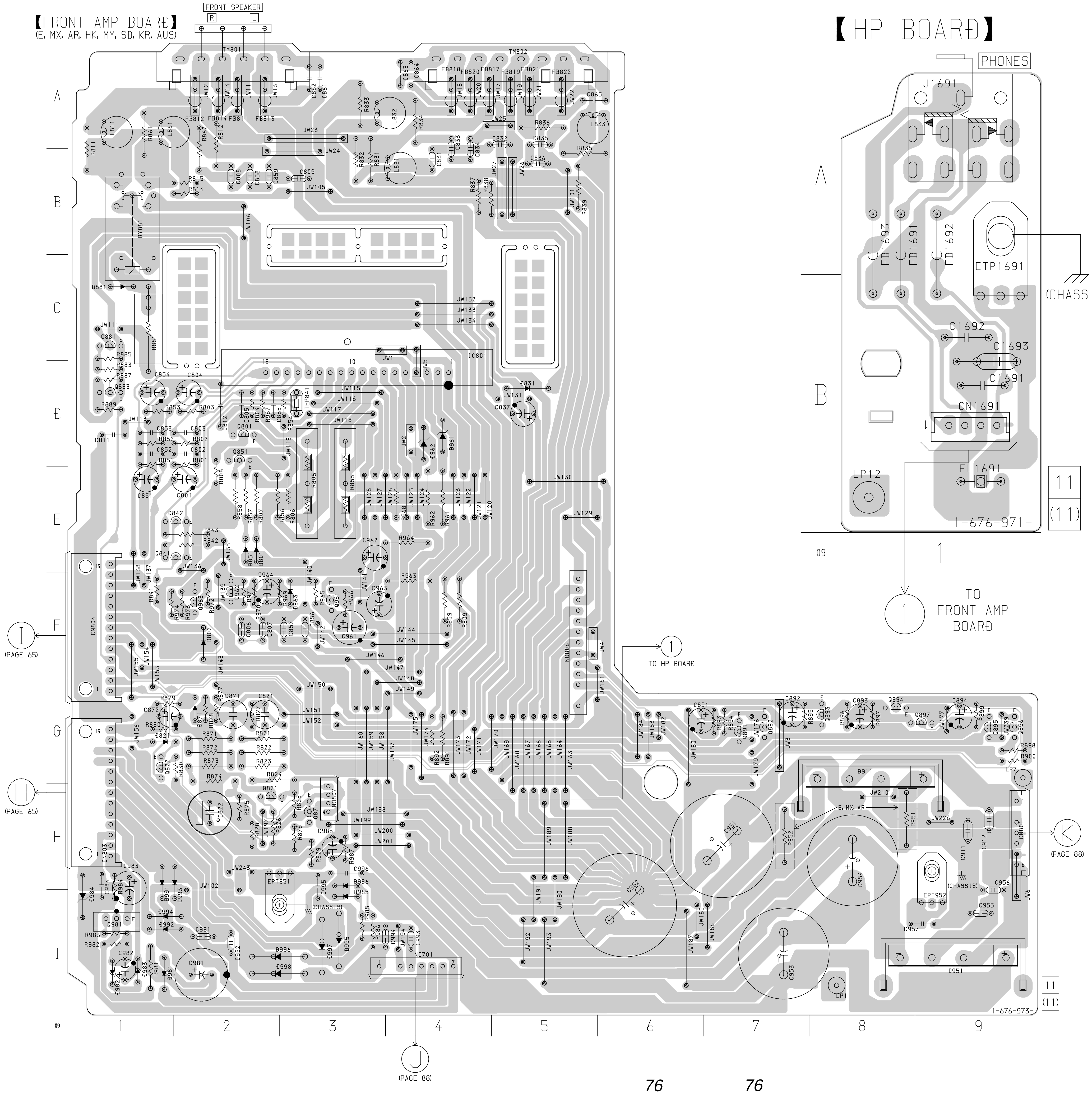


NOTE

- Voltages and waveforms are dc with respect to ground under no-signal conditions.
  no mark:FM

Note:The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

7-21. PRINTED WIRING BOARD – AMP (E, MX, AR, HK, MY, SP, KR, AUS model) SECTION – • See page 51 for Circuit Boards Location.

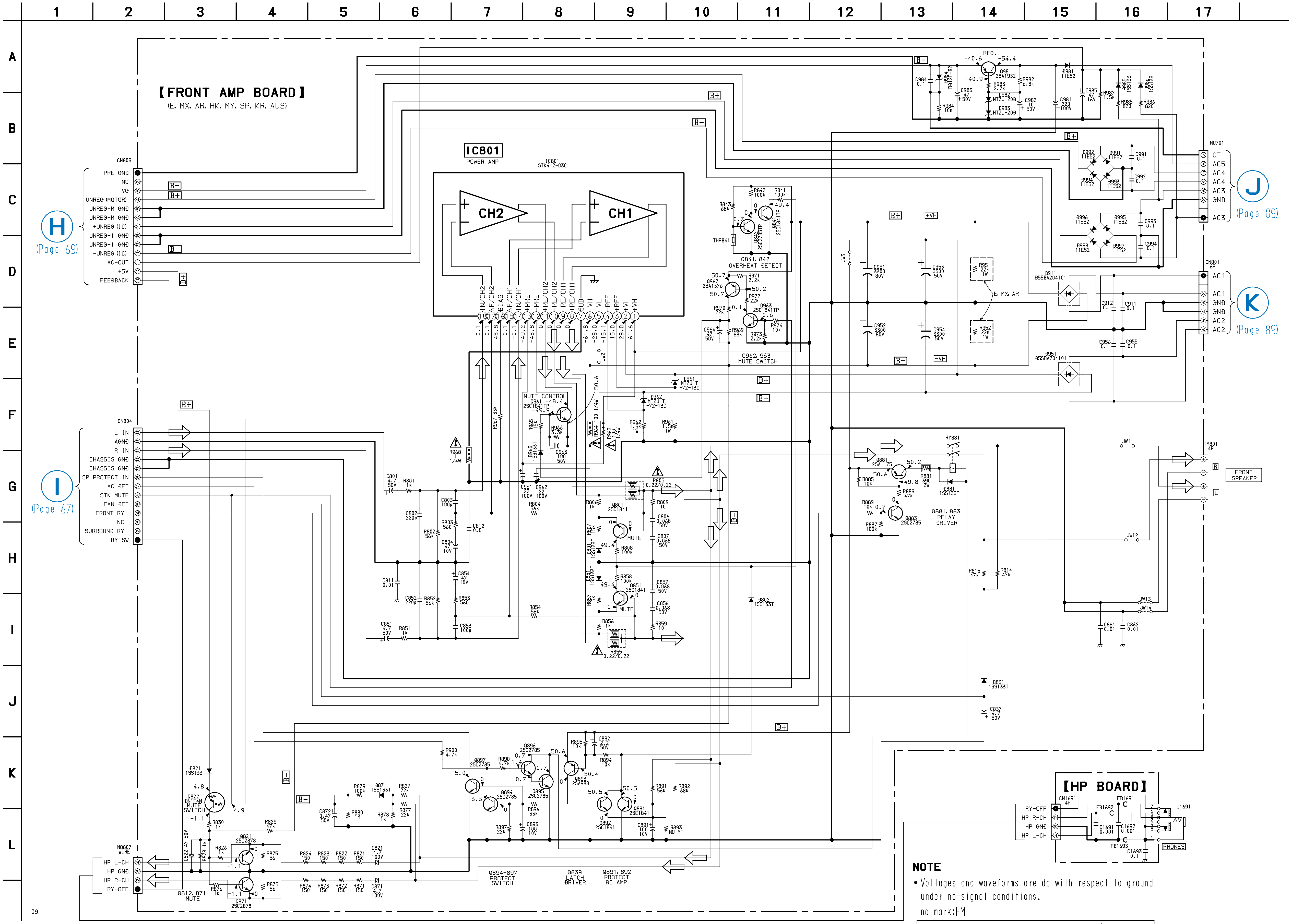


• **Semiconductor Location**

Ref. No.	Location
D801	E-2
D802	F-2
D821	G-1
D831	D-5
D851	E-2
D871	G-2
D881	C-1
D911	G-8
D951	I-9
D961	D-4
D962	D-4
D963	F-3
D981	I-1
D982	I-1
D983	I-1
D984	I-1
D985	I-3
D986	H-3
D991	H-1
D992	I-1
D993	H-1
D994	I-1
D995	I-3
D996	I-2
D997	I-3
D998	I-2
IC801	D-4
Q801	D-2
Q821	H-2
Q822	G-1
Q841	E-1
Q842	E-1
Q851	D-2
Q871	H-3
Q881	C-1
Q883	D-1
Q891	G-7
Q892	G-7
Q893	G-8
Q894	G-8
Q895	G-9
Q896	G-9
Q897	G-9
Q961	F-3
Q962	F-2
Q963	F-2
Q981	I-1

There are few cases that the part isn't mounted in model is printed on diagram.

7-22. SCHEMATIC DIAGRAM – AMP (E, MX, AR, HK, MY, SP, KR, AUS model) SECTION –



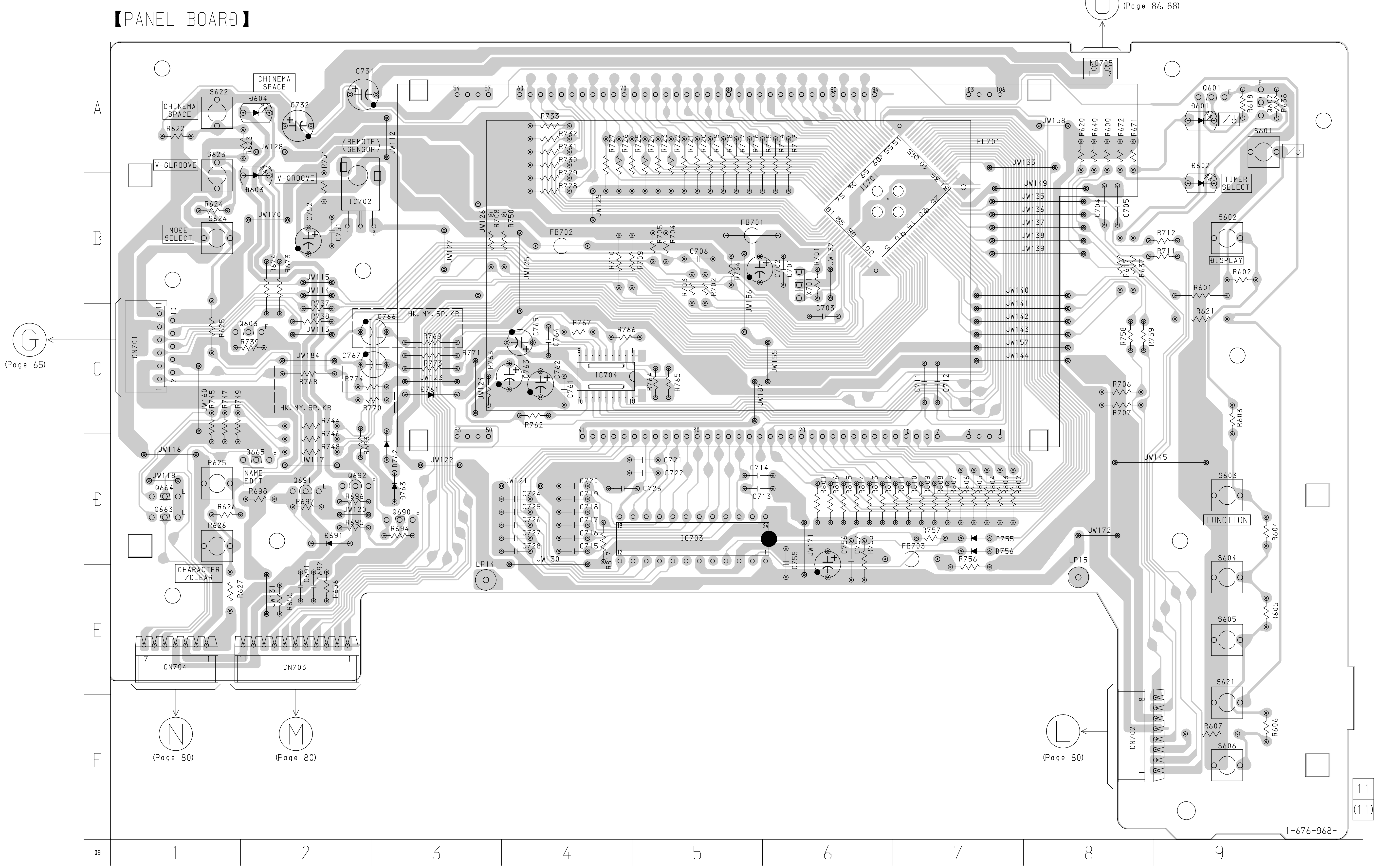
NOTE

- Voltages and waveforms are dc with respect to ground under no-signal conditions.

  no mark:FM

Note:The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

7-23. PRINTED WIRING BOARD – PANEL SECTION – • See page 51 for Circuit Boards Location.

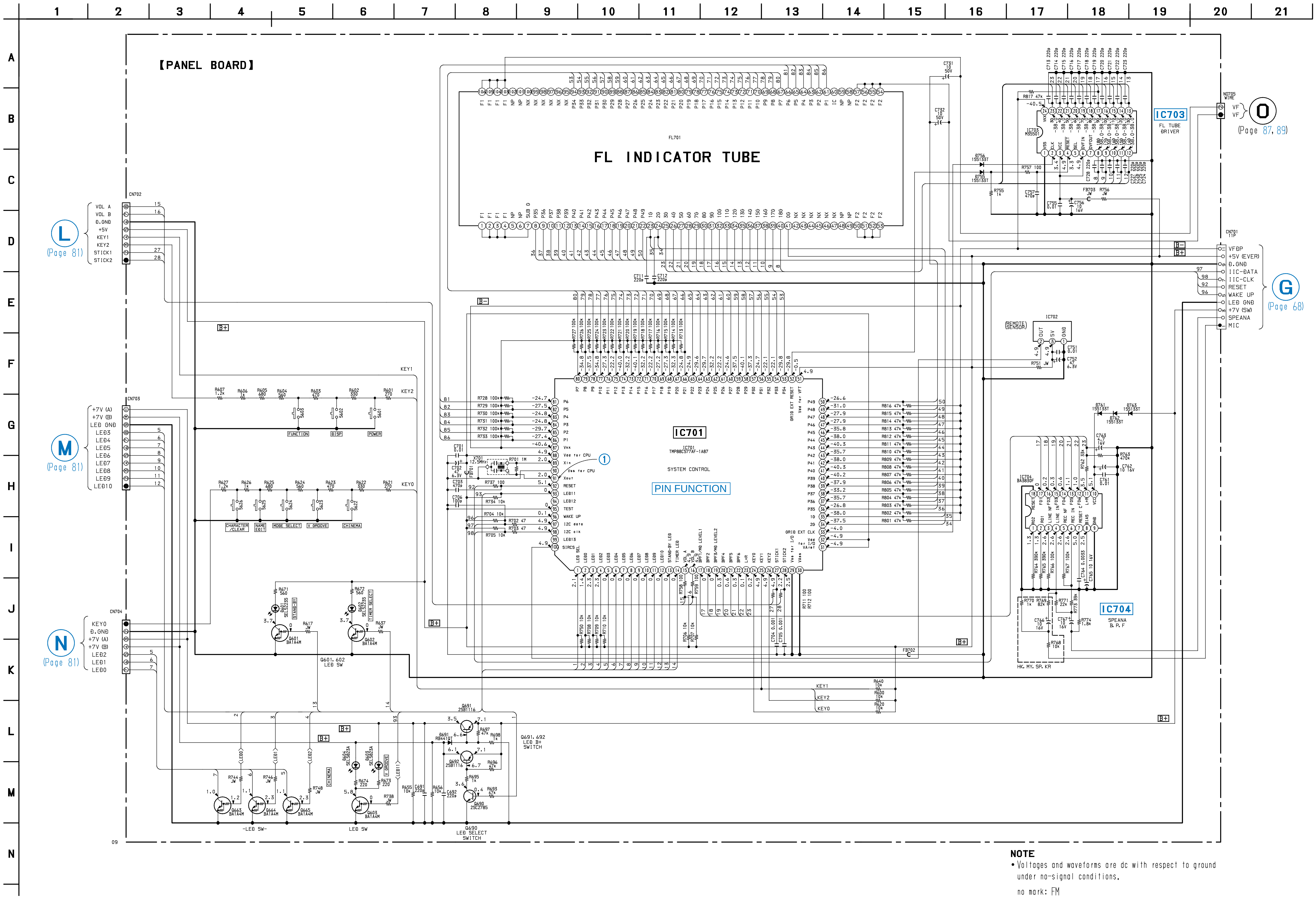


• **Semiconductor Location**

Ref. No.	Location	Ref. No.	Location	Ref. No.	Location	Ref. No.	Location
D601	A-9	D756	D-7	IC702	B-2	Q603	C-2
D602	B-9	D761	C-3	IC703	D-5	Q663	D-1
D603	B-2	D762	D-3	IC704	C-4	Q664	D-1
D604	A-2	D763	D-3			Q665	D-2
D691	D-2			Q601	A-9	Q690	D-3
D755	D-7	IC701	B-6	Q602	A-9	Q691	D-2
						Q692	D-2

There are few cases that the part isn't mounted in model is printed on diagram.

7-24. SCHEMATIC DIAGRAM – PANEL SECTION – • See page 53 for Waveforms. • See page 93 for IC Block Diagrams. • See page 105 for IC Pin Functions.

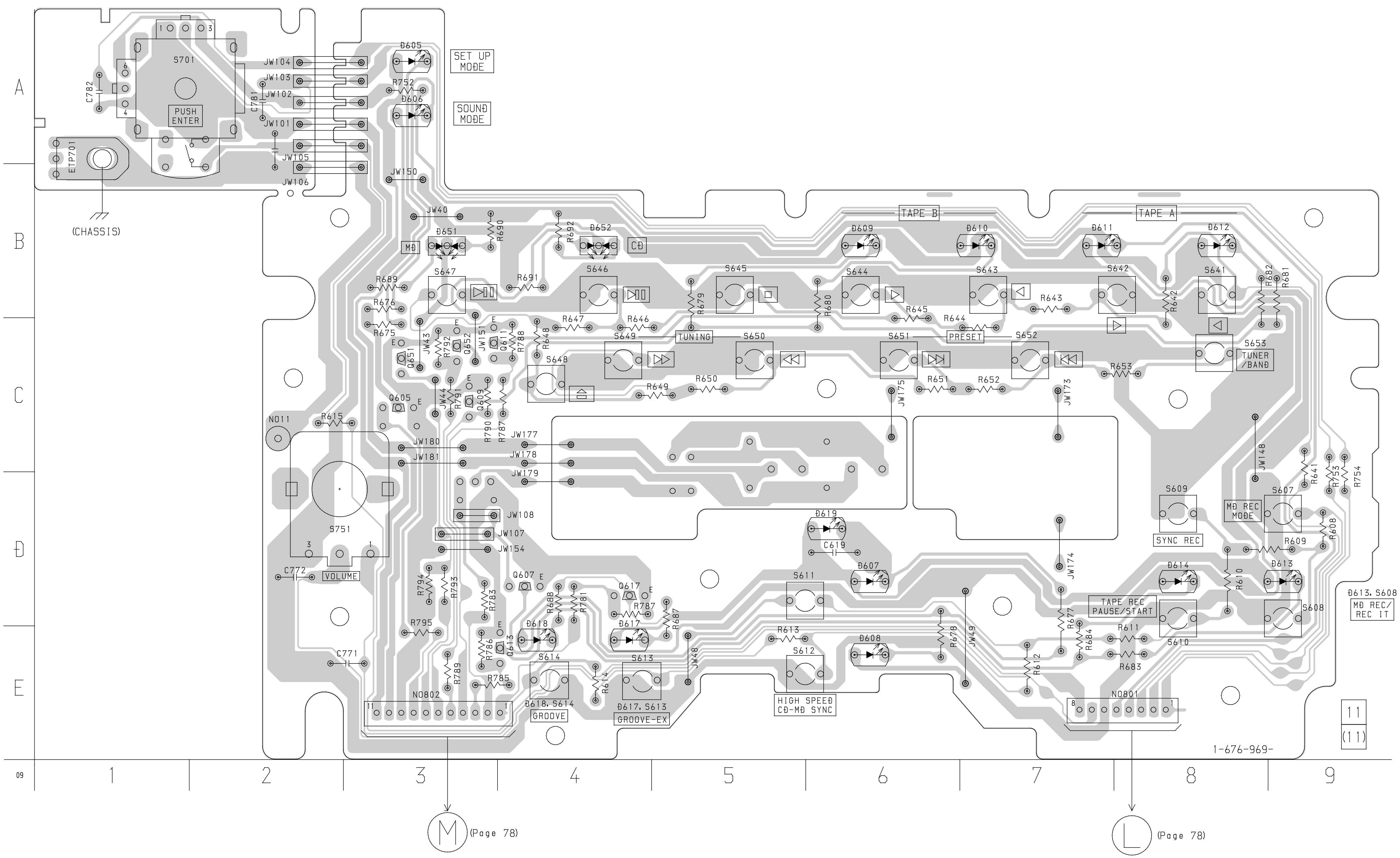


NOTE
- Voltages and waveforms are dc with respect to ground under no-signal conditions.

no mark: FM

7-25. PRINTED WIRING BOARD – SWITCH SECTION – • See page 51 for Circuit Boards Location.

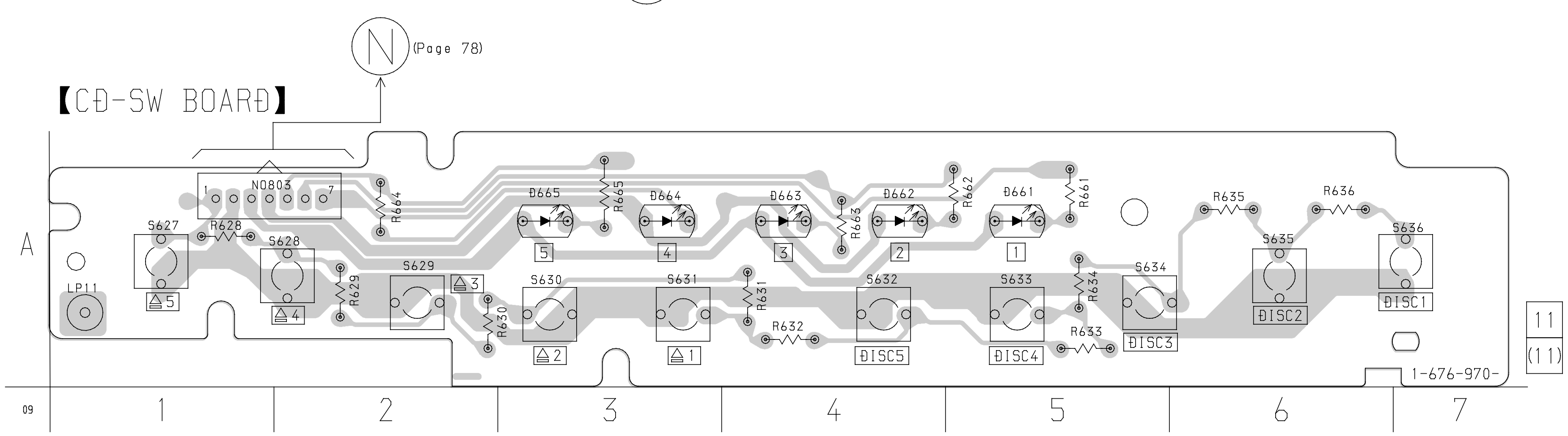
【SUB PANEL BOARD】



• **Semiconductor Location**

Ref. No.	Location
D605	A-3
D606	A-3
D609	B-6
D610	B-7
D611	B-7
D612	B-8
D613	D-9
D614	D-8
D617	E-4
D618	E-4
D619	D-6
D651	B-3
D652	B-4
Q605	C-3
Q607	D-4
Q609	C-3
Q611	C-3
Q613	E-4
Q617	D-4
Q651	C-3
Q652	C-3

【CD-SW BOARD】

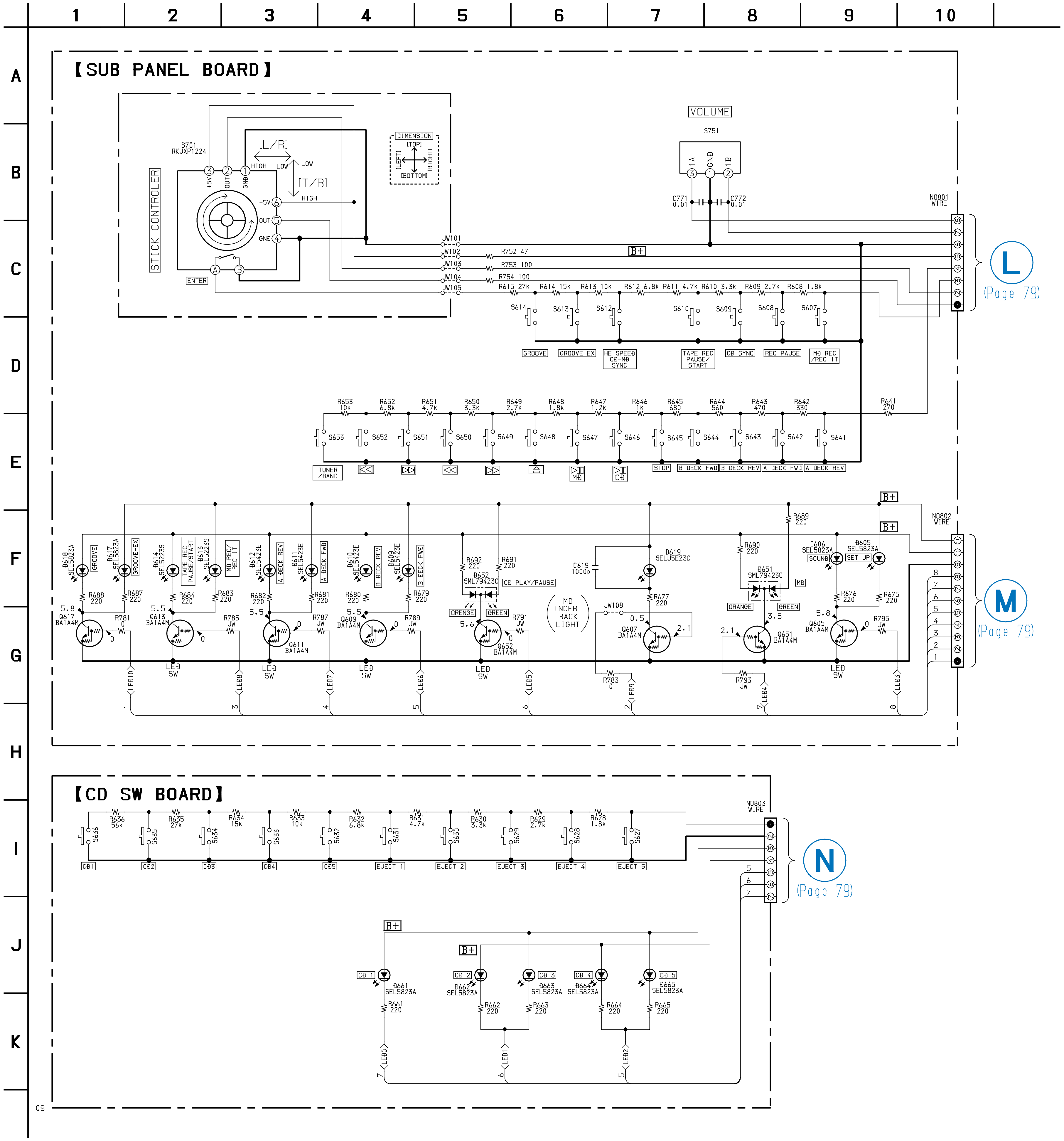


• **Semiconductor Location**

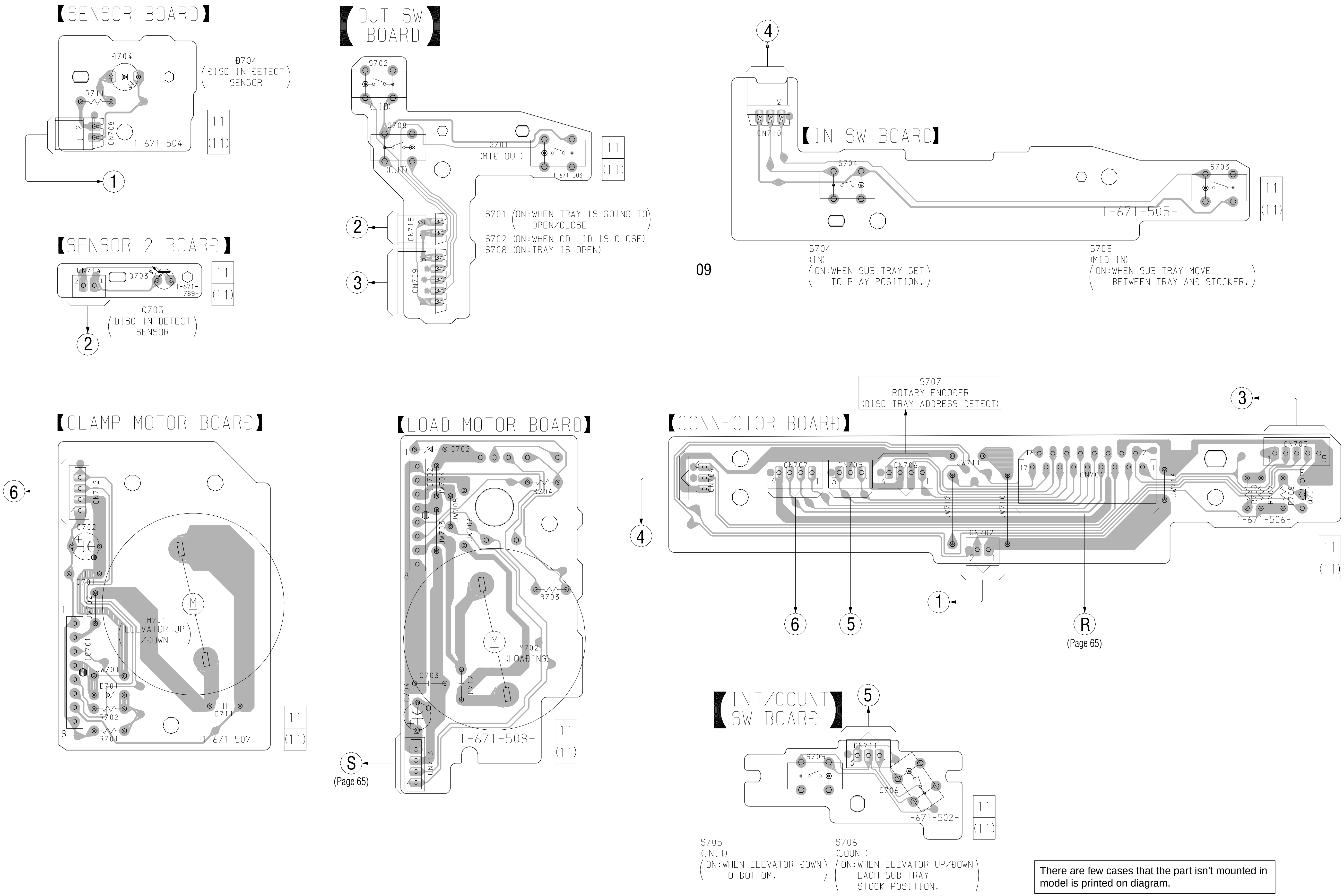
Ref. No.	Location
D661	A-5
D662	A-4
D663	A-4
D664	A-3
D665	A-3

There are few cases that the part isn't mounted in model is printed on diagram.

7-26. SCHEMATIC DIAGRAM – SWITCH SECTION –

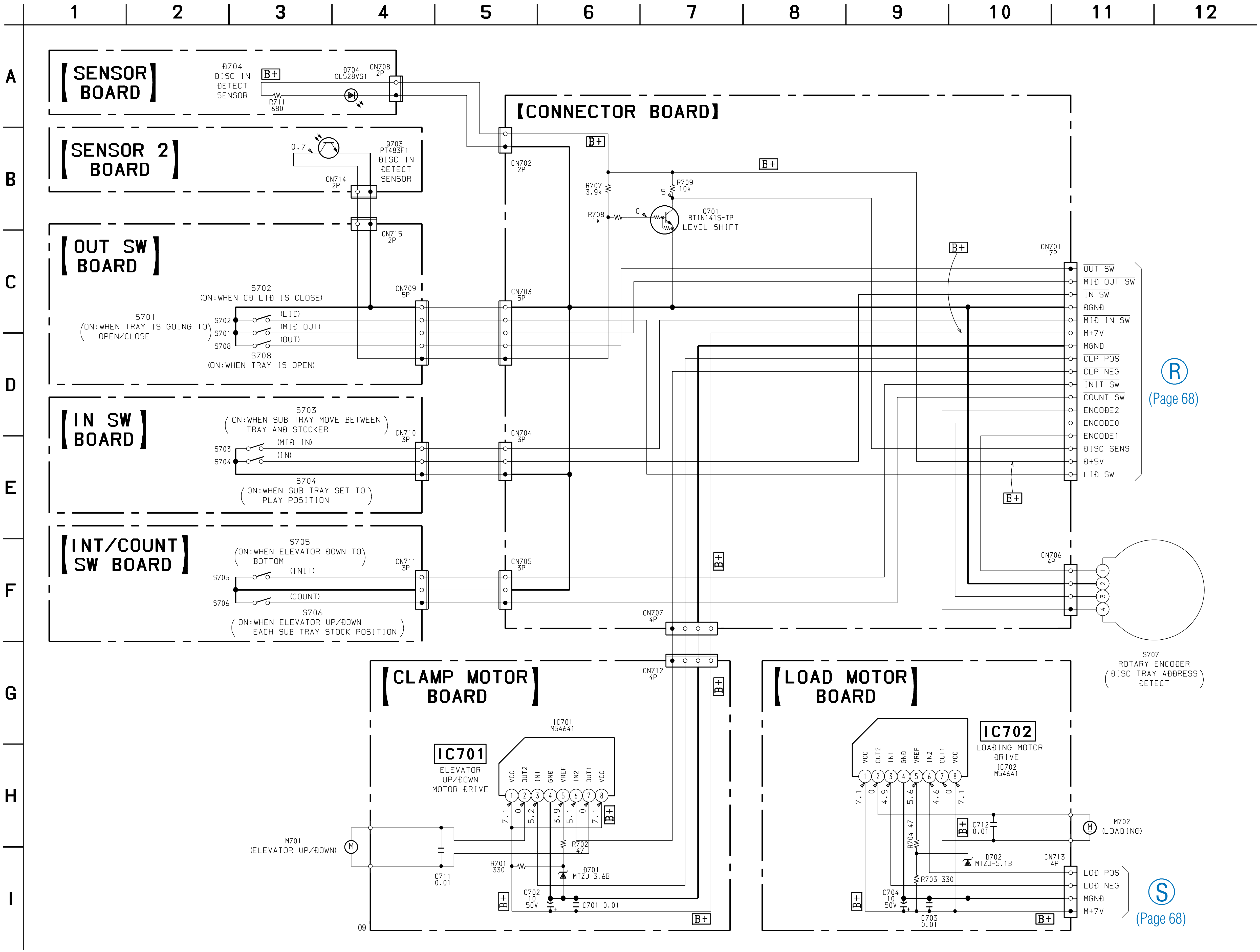


7-27. PRINTED WIRING BOARD – CD MECHANISM SECTION – • See page 51 for Circuit Boards Location.

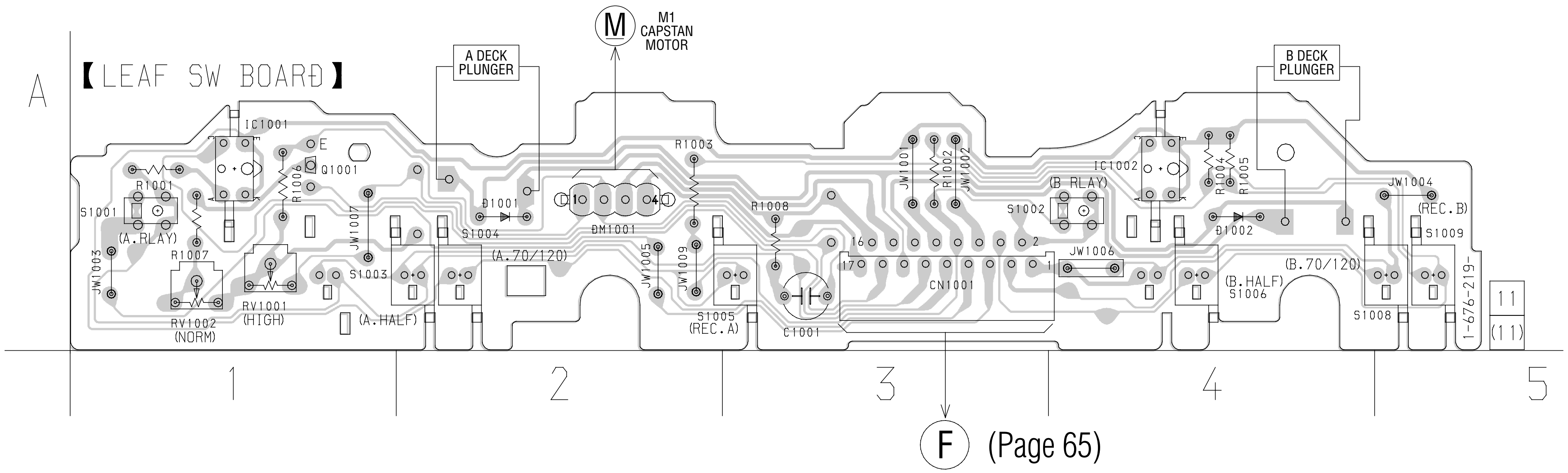


There are few cases that the part isn't mounted in model is printed on diagram.

7-28. SCHEMATIC DIAGRAM – CD MECHANISM SECTION –

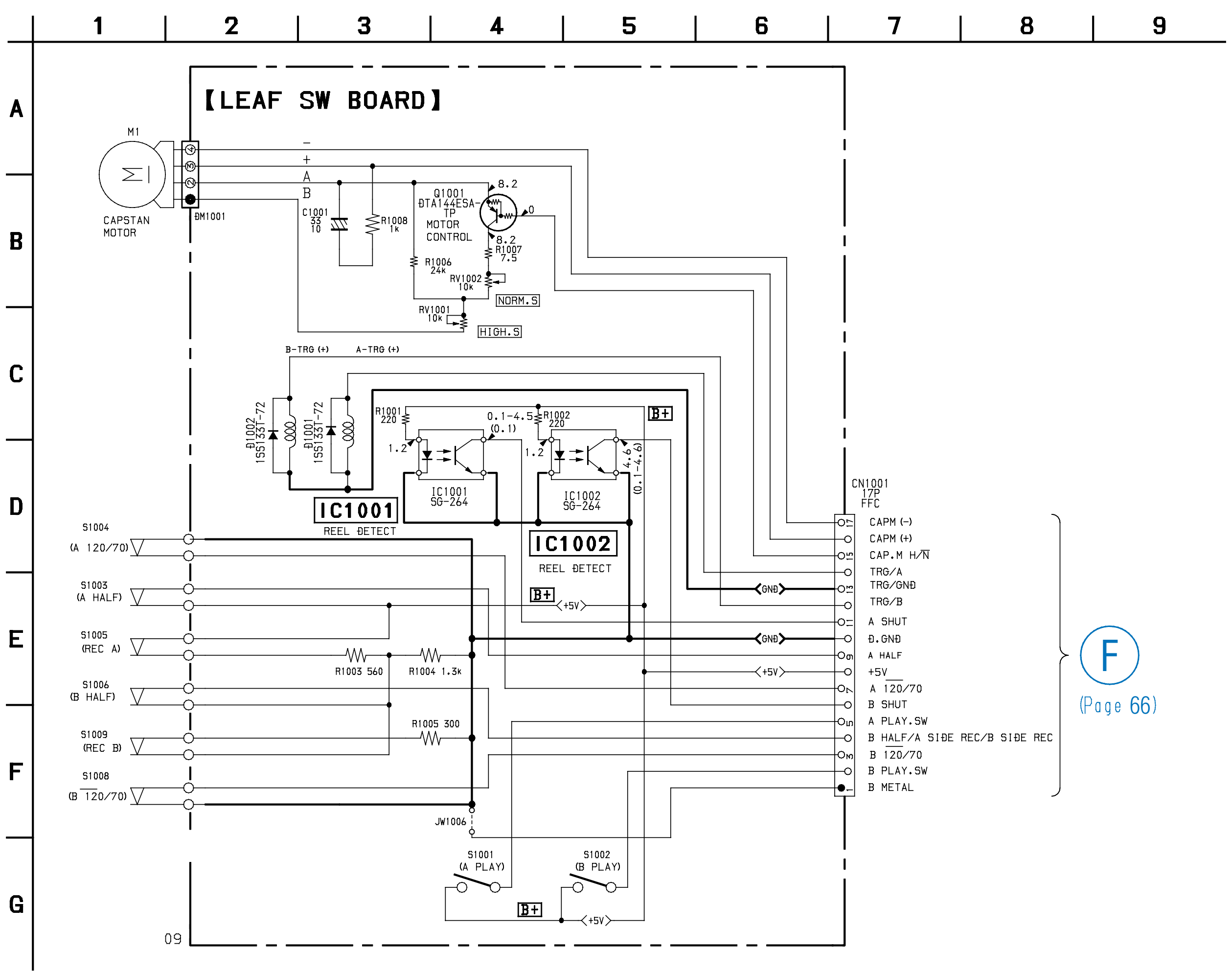


7-29. PRINTED WIRING BOARD – LEAF SW SECTION – • See page 51 for Circuit Boards Location.

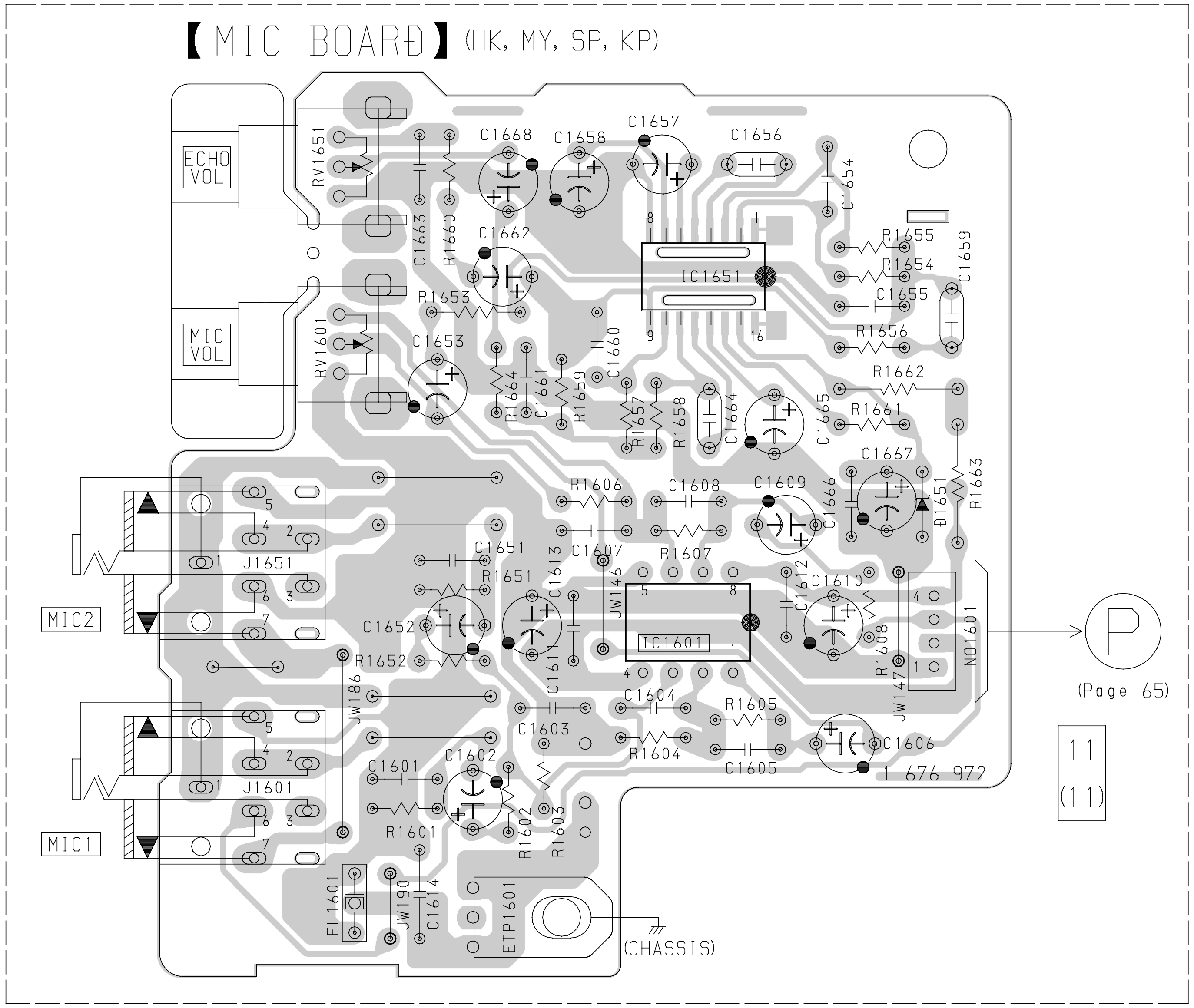


There are few cases that the part isn't mounted in model is printed on diagram.

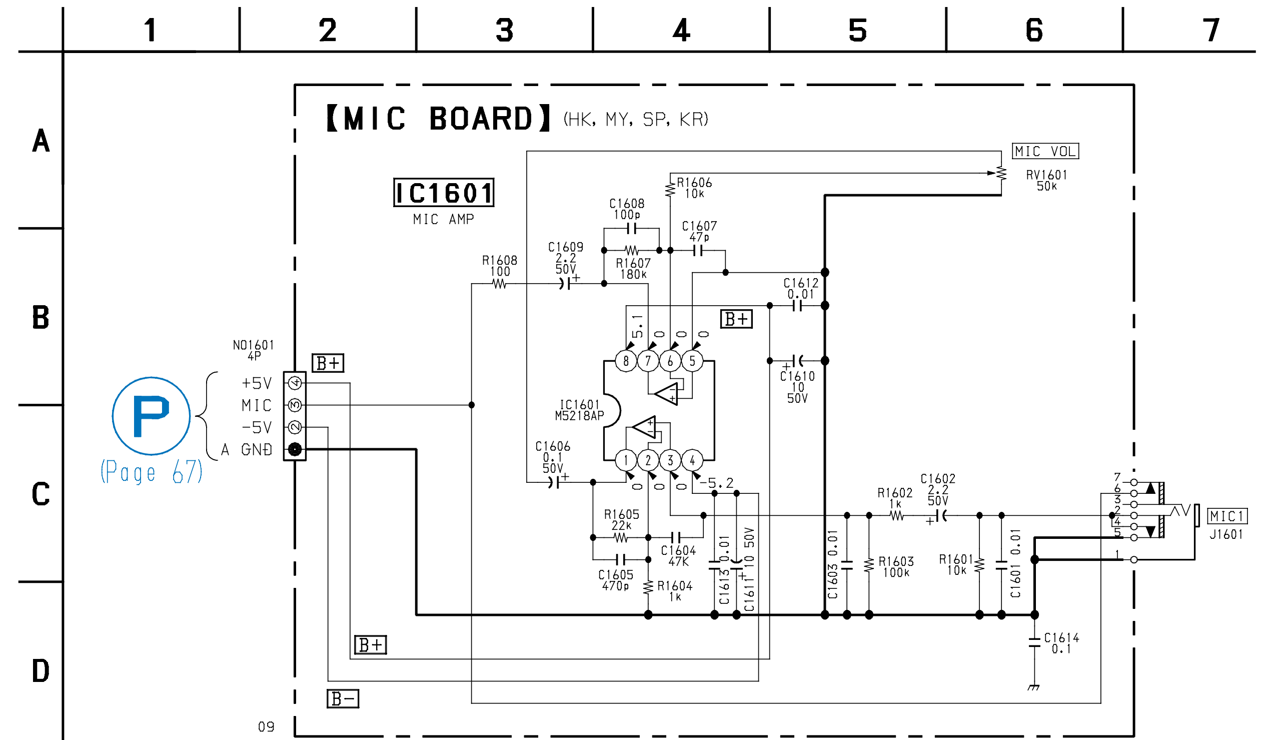
7-30. SCHEMATIC DIAGRAM – LEAF SW SECTION –



7-31. PRINTED WIRING BOARD – MIC SECTION – • See page 51 for Circuit Boards Location.



7-32. SCHEMATIC DIAGRAM – MIC SECTION –

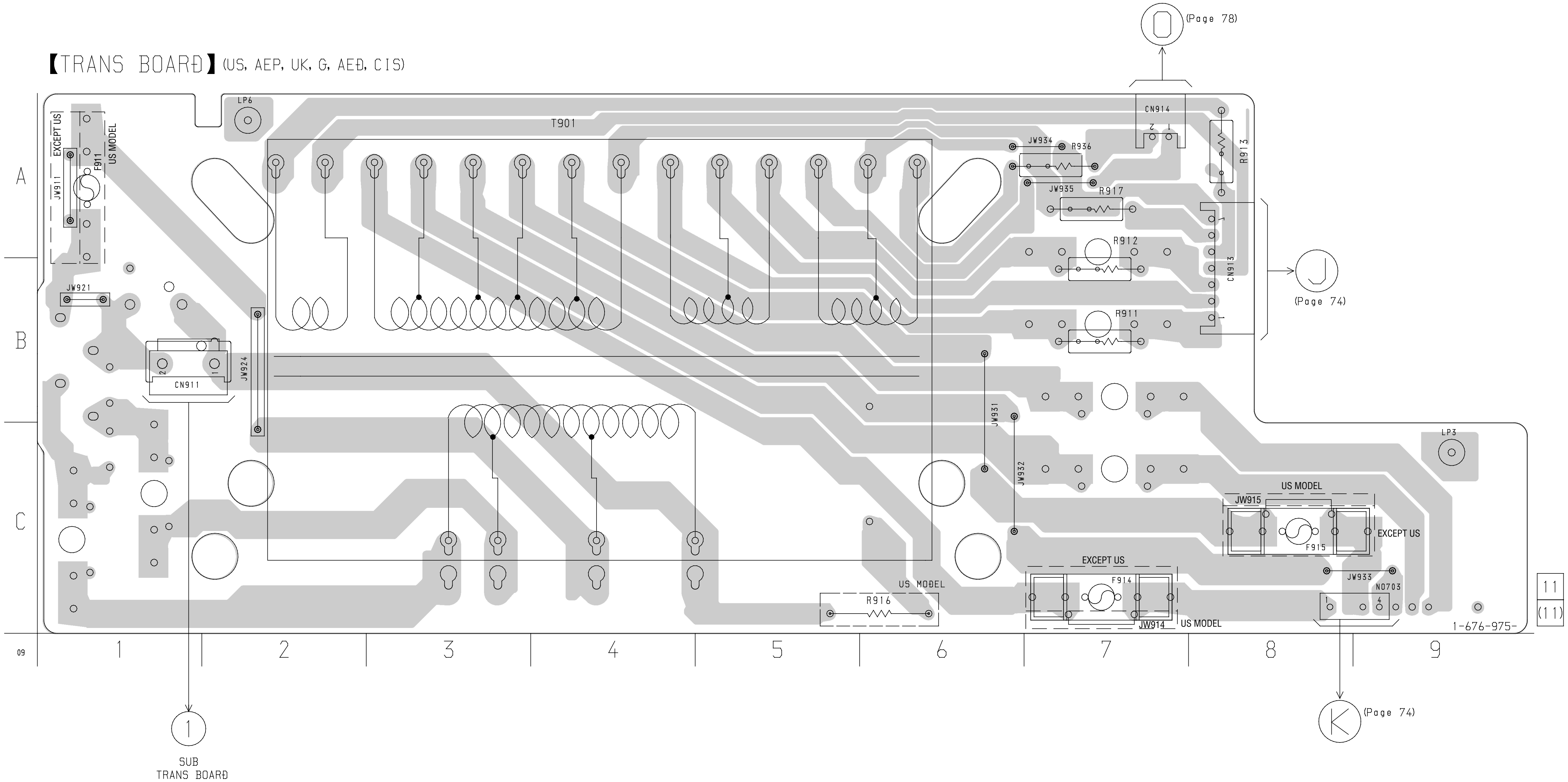


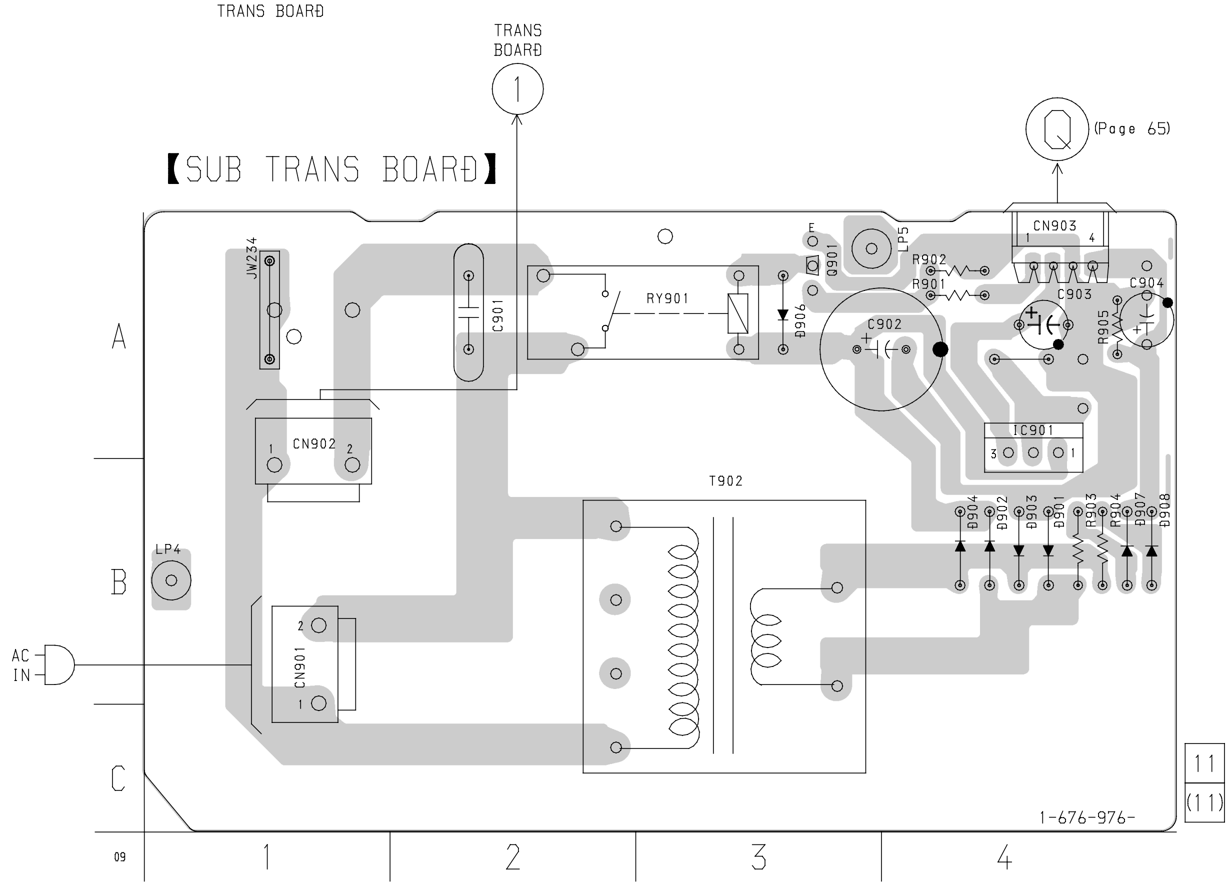
NOTE

- Voltages and waveforms are dc with respect to ground under no-signal conditions.
  no mark:FM

There are few cases that the part isn't mounted in model is printed on diagram.

7-33. PRINTED WIRING BOARD – POWER SUPPLY (US, AEP, UK, G, AED, CIS model) SECTION – • See page 51 for Circuit Boards Location.



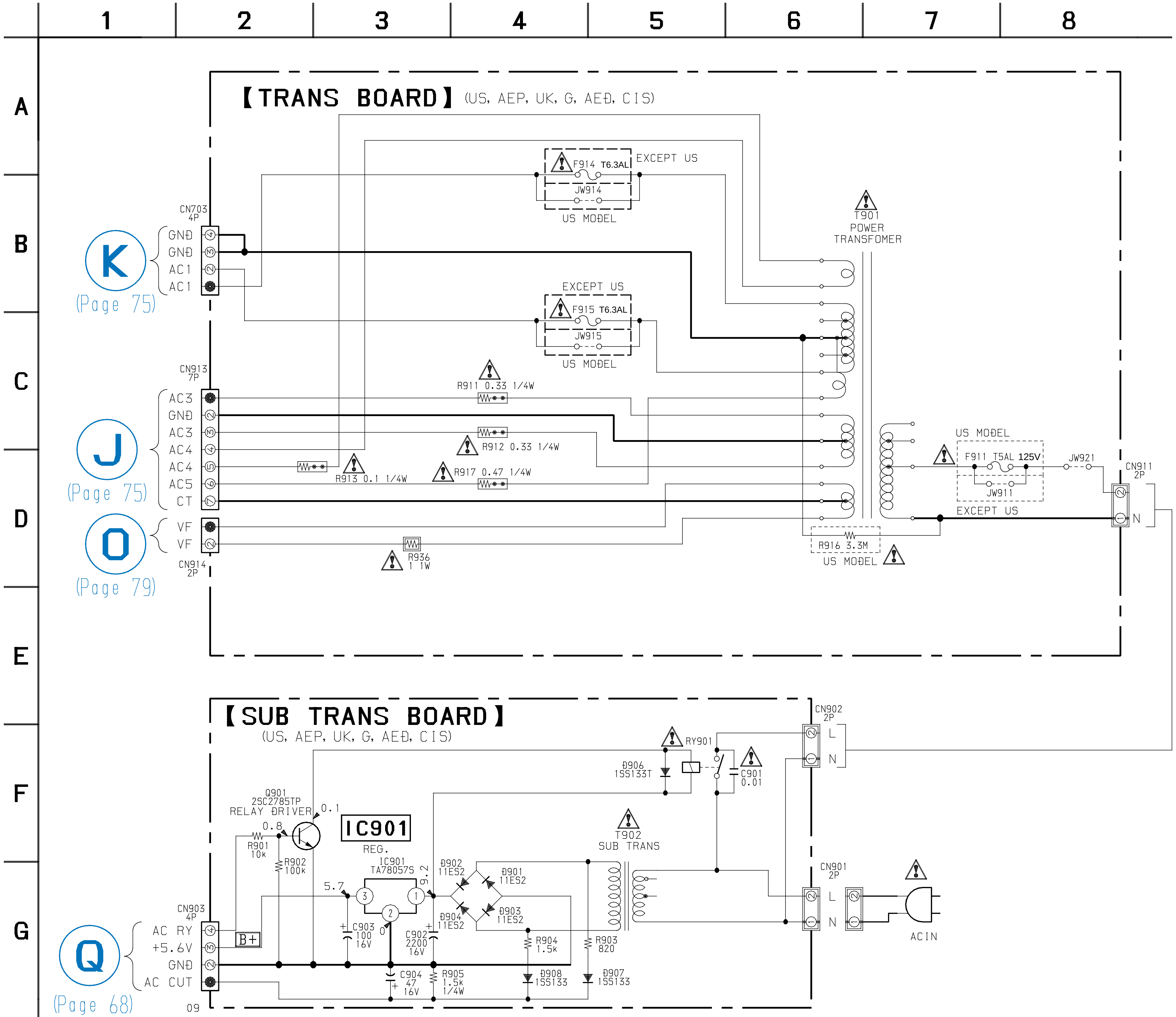


• Semiconductor Location

Ref. No.	Location
D901	B-4
D902	B-4
D903	B-4
D904	B-4
D906	A-3
D907	B-4
D908	B-4
IC901	A-4
Q901	A-3

There are few cases that the part isn't mounted in model is printed on diagram.

7-34. SCHEMATIC DIAGRAM – POWER SUPPLY (US, AEP, UK, G, AED, CIS model) SECTION –

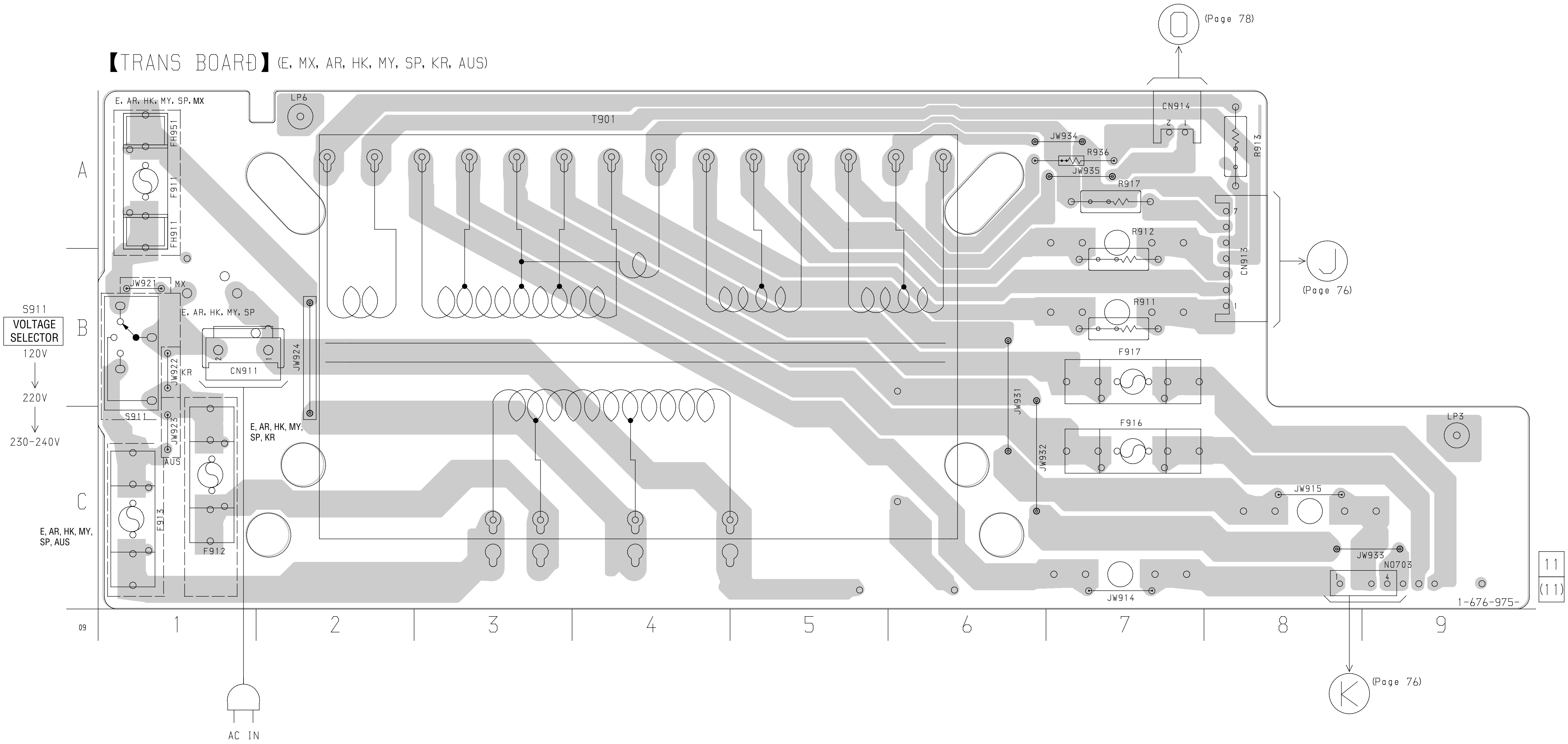


NOTE

- Voltages and waveforms are dc with respect to ground under no-signal conditions.
  no mark: STOP

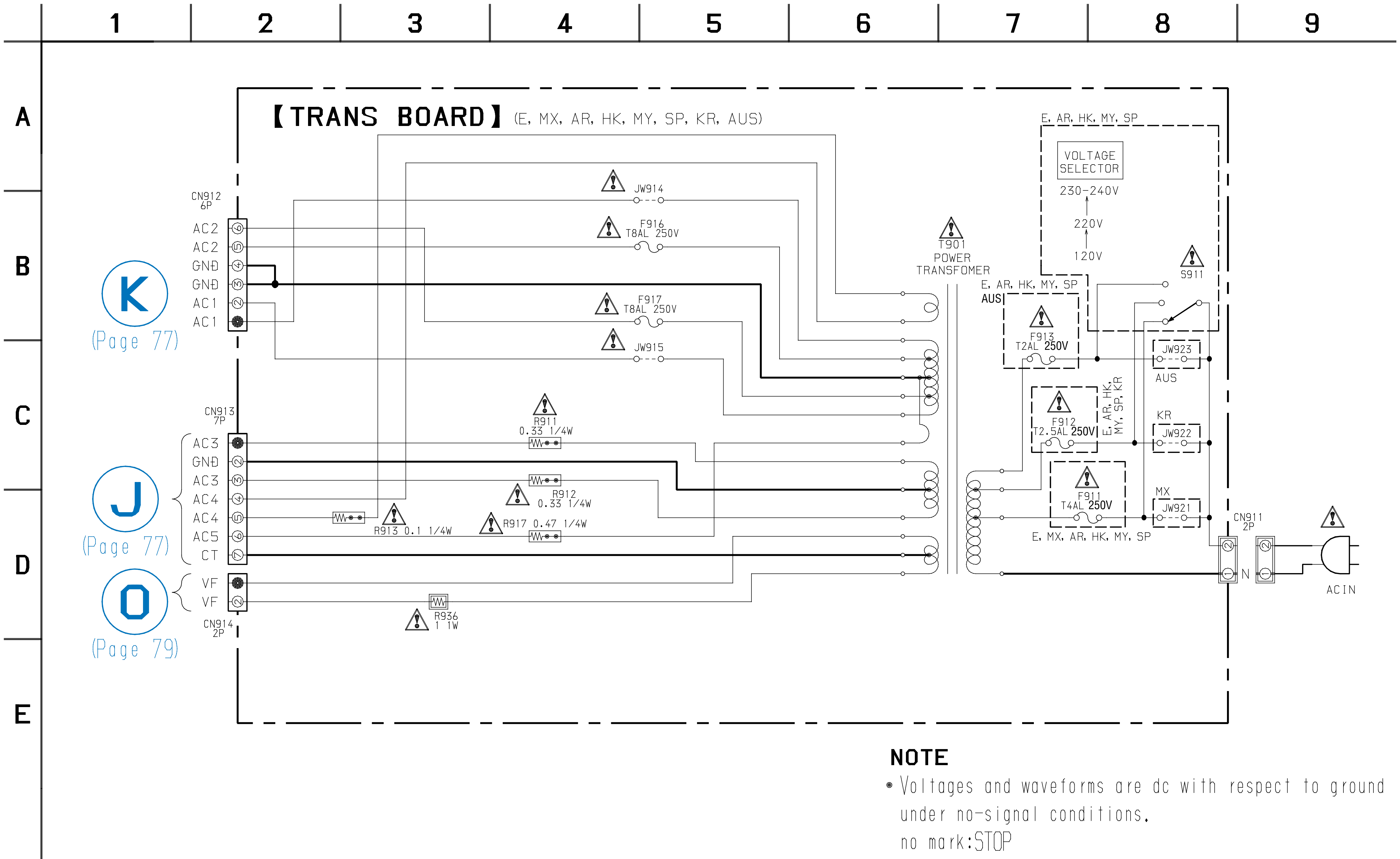
Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

7-35. PRINTED WIRING BOARD – POWER SUPPLY (E, MX, AR, HK, MY, SP, KR, AUS model) SECTION – • See page 51 for Circuit Boards Location.



There are few cases that the part isn't mounted in model is printed on diagram.

7-34. SCHEMATIC DIAGRAM – POWER SUPPLY (E, MX, AR, HK, MY, SP, KR, AUS model) SECTION –



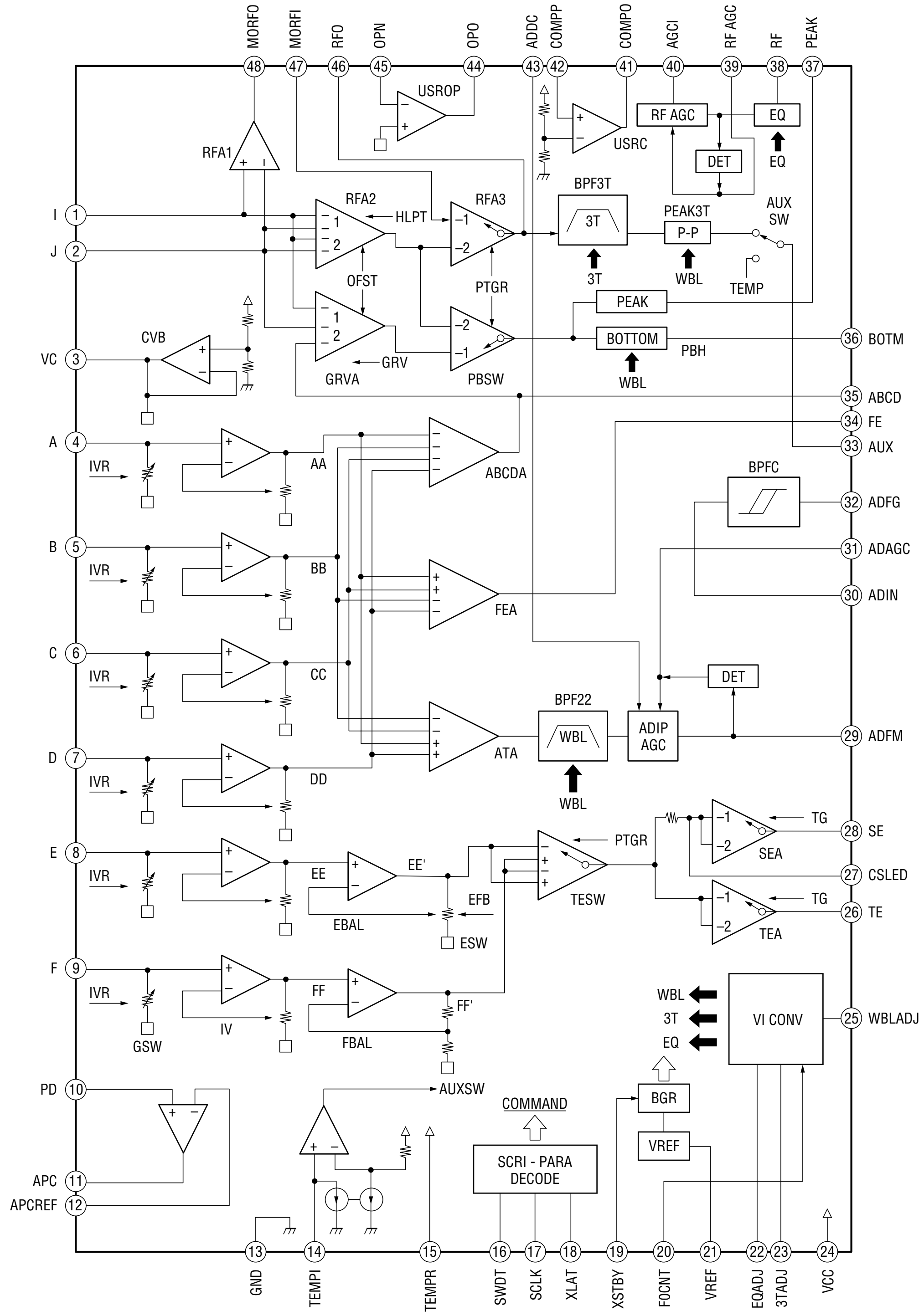
NOTE

- Voltages and waveforms are dc with respect to ground under no-signal conditions.
  no mark:STOP

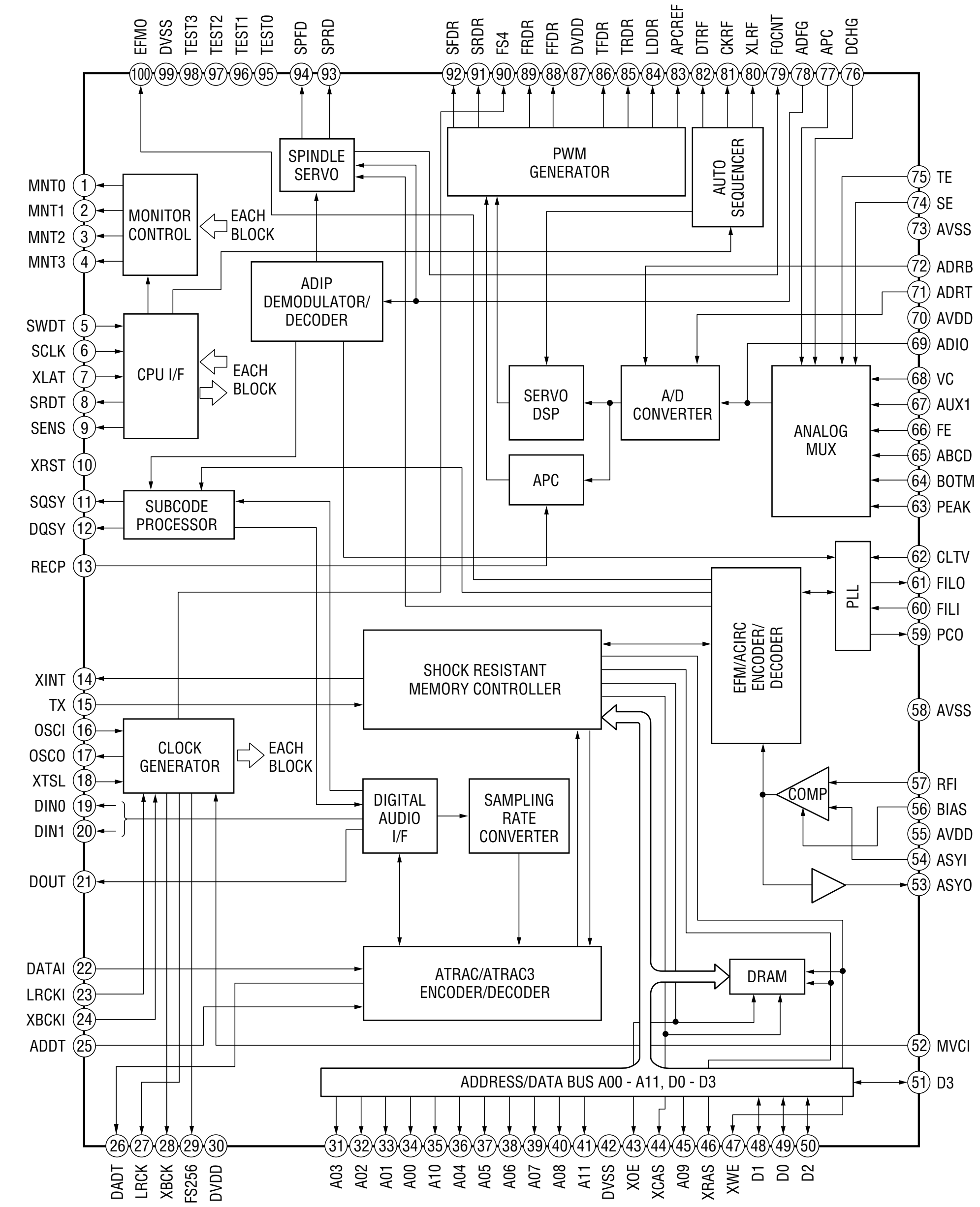
Note:The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

7-37. IC BLOCK DIAGRAMS

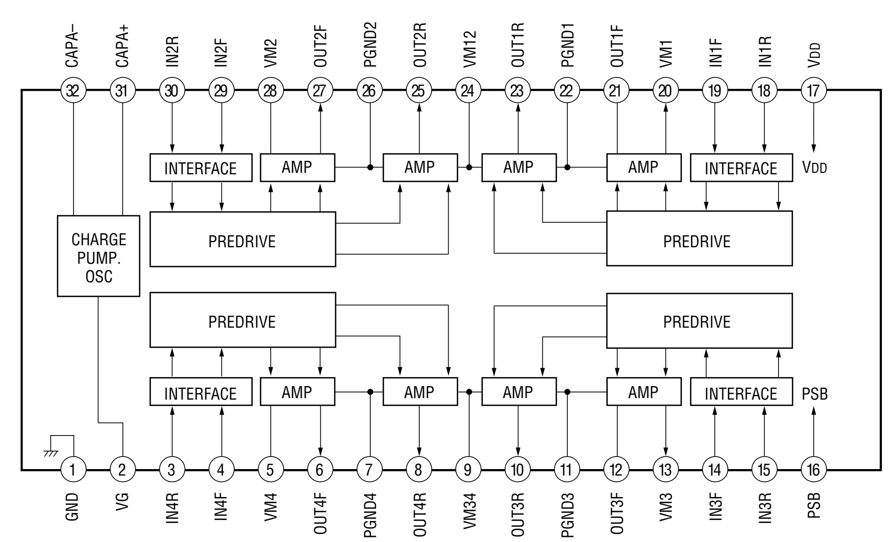
IC101 CXA2523AR (BD (MD) BOARD)



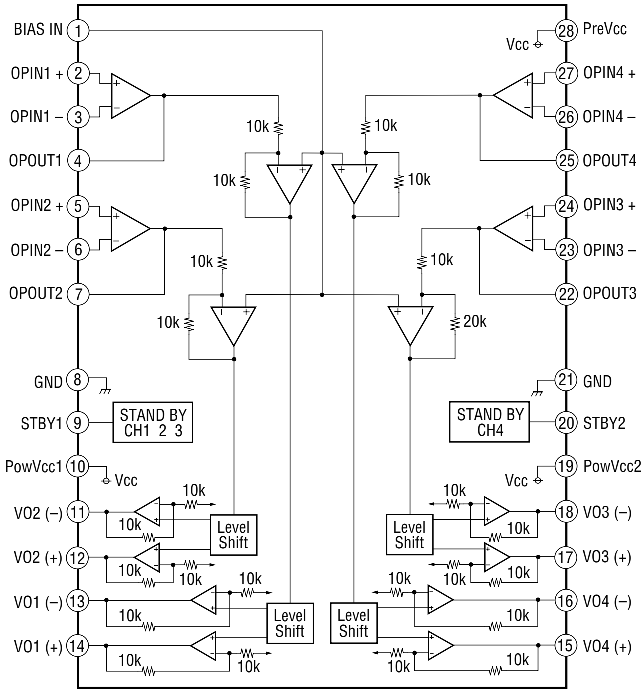
IC151 CXD2662R (BD (MD) BOARD)



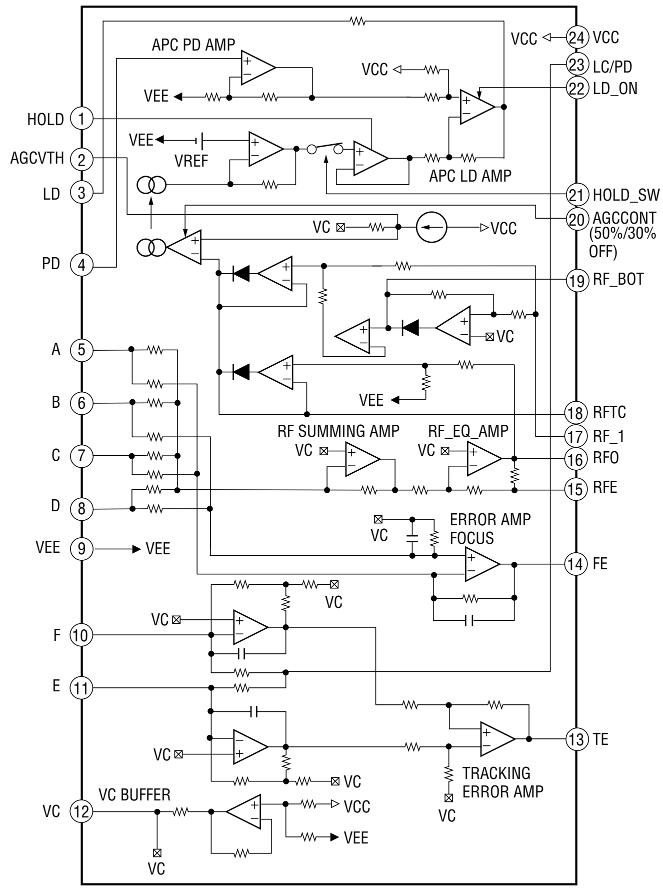
IC141 BH6511FS (BD (MD) BOARD)



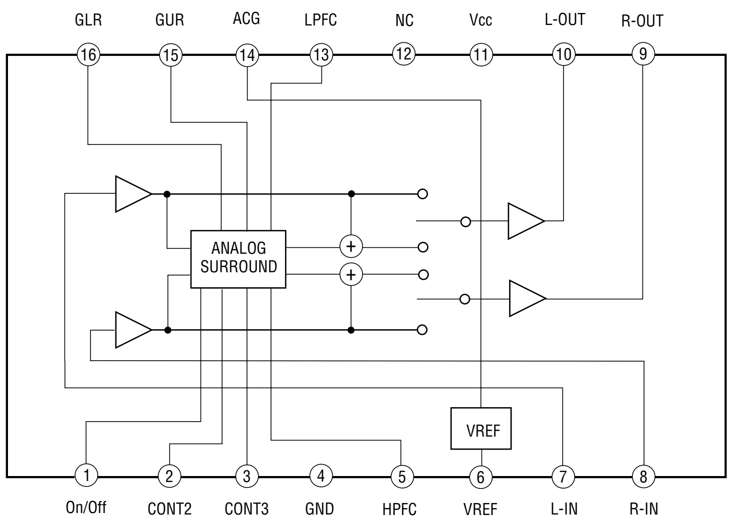
IC102 BA5982FM (BD (CD) BOARD)



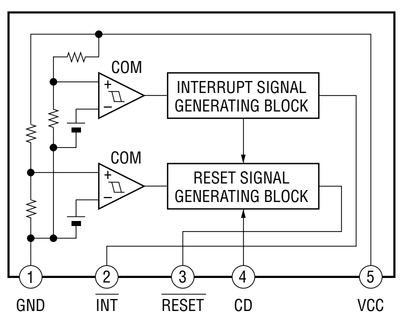
IC103 CXA2568M-T (BD (CD) BOARD)



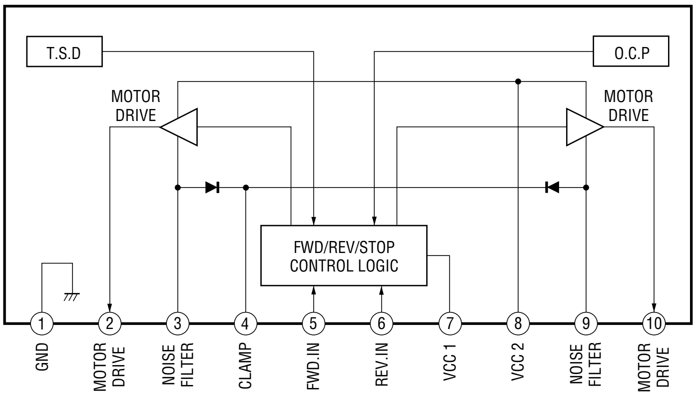
IC202 LA2615 (MAIN BOARD)



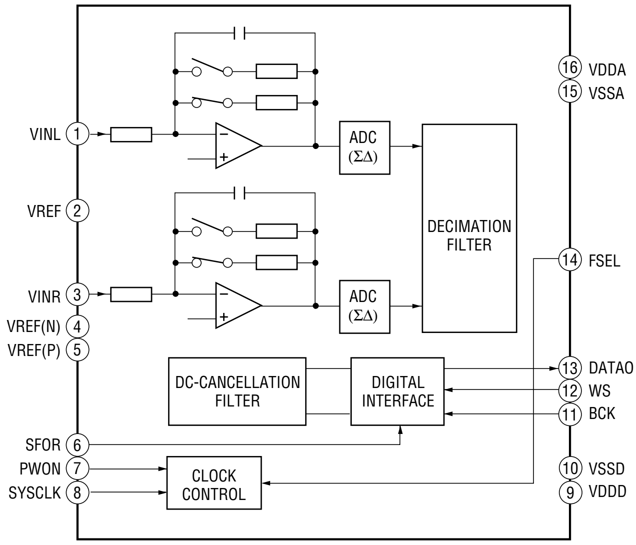
IC502 M62016L (MAIN BOARD)



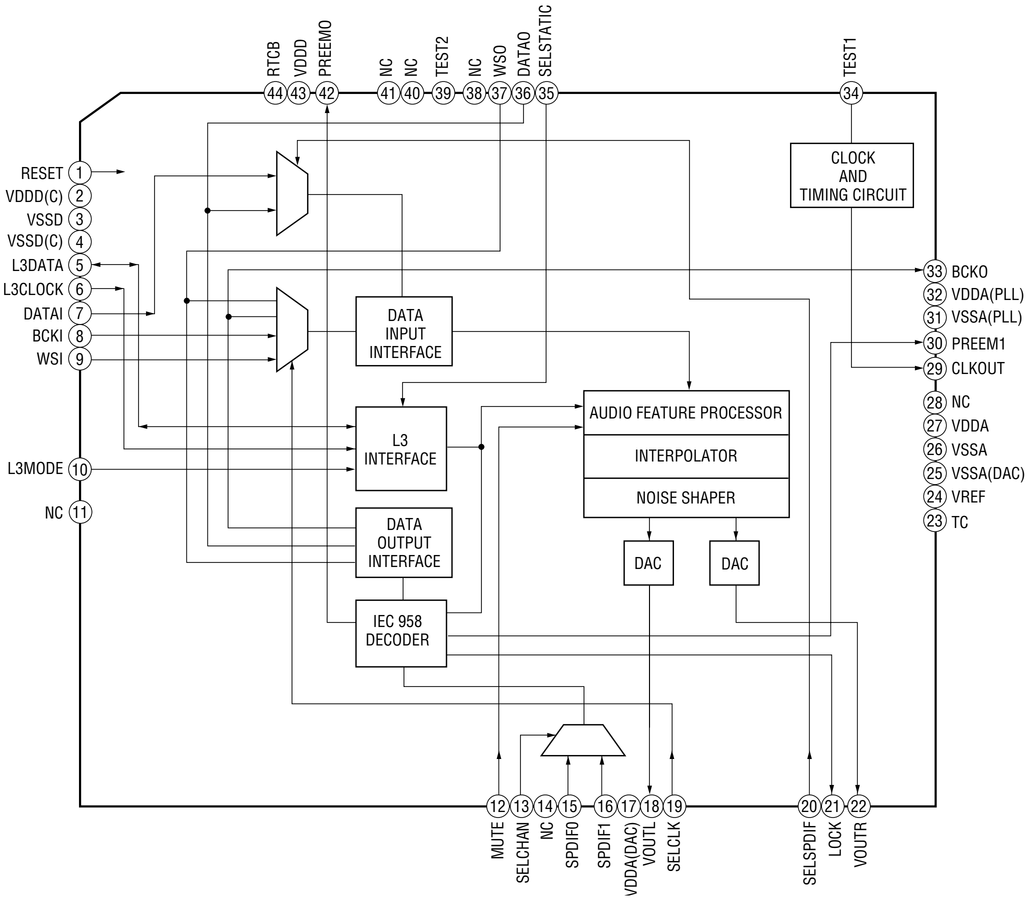
IC1004 LB1641 (DIGITAL BOARD)



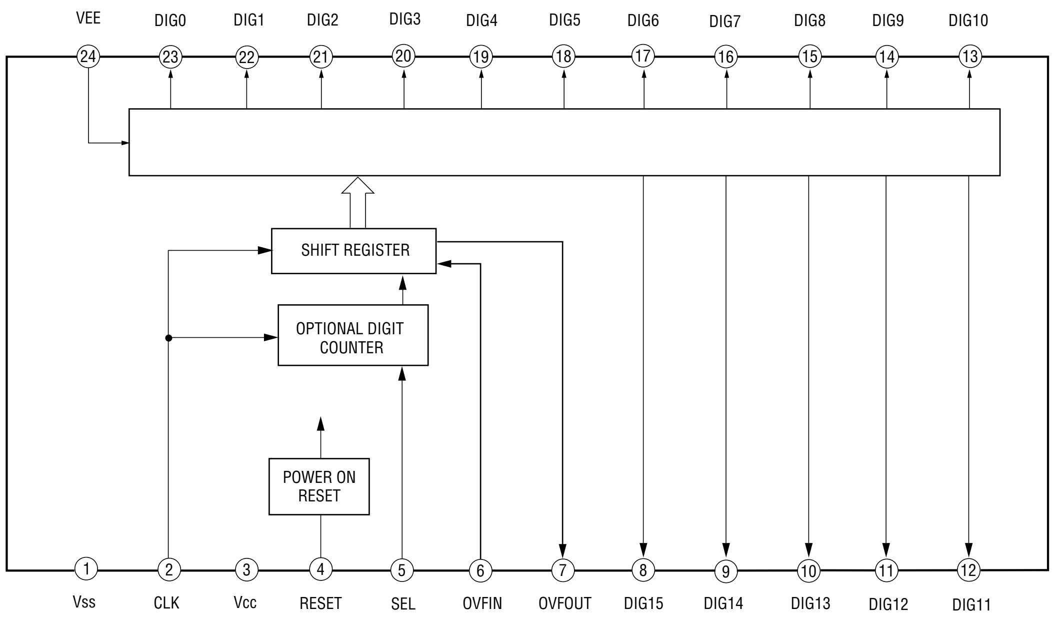
IC1005 µDA1360TS (DIGITAL BOARD)



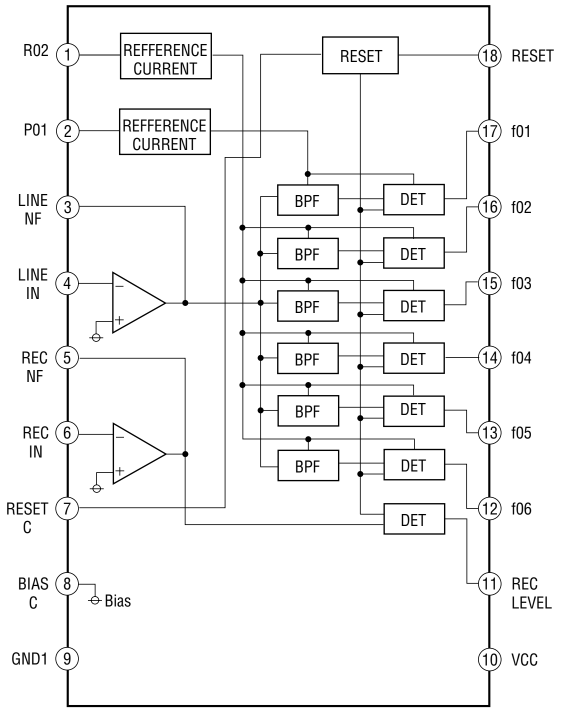
IC1006 µDA1350AH (DIGITAL BOARD)



IC703 M35501P (PANEL BOARD)



IC704 BA3830F (PANEL BOARD)



7-38. IC PIN FUNCTIONS

• IC101 DIGITAL SIGNAL PROCESSOR (CXD3008Q) (BD (CD) Board)

Pin No.	Pin Name	I/O	Function
1	DVDD0	—	Digital power supply
2	XRST	I	System reset
3	MUTE	I	Muting selection pin
4	DATA	I	Serial data input, supplied from CPU
5	XLAT	I	Latch input, supplied from CPU
6	CLOK	I	Serial data transfer clock input, supplied from CPU
7	SENS	O	SENS output
8	SCLK	I	SENS serial data read-out clock
9	ATSK	I/O	Input pin for anti-shock (Ground)
10	WFCK	O	WFCK (Write Frame Clock) output (Not used)
11	XUGF	O	XUGF output (Not used)
12	XPCK	O	XPCK output (Not used)
13	GFS	O	GFS output (Not used)
14	C2P0	O	C2PO output
15	SCOR	O	Sub-code sync output
16	CM4	O	4.2336MHz output (Not used)
17	WDCK	O	48-bit slot D/A interface word clock (Not used)
18	DVSS	—	Digital ground
19	COUT	O	Numbers of track counted signal output (Not used)
20	MIRR	O	Mirror signal output (Not used)
21	DFCT	O	Defect signal output (Not used)
22	FOK	O	Focus OK output (Not used)
23	PWM1	I	(Not used)
24	LOCK	I/O	GFS in sampled by 460Hz (Not used)
25	MDP	O	Output to control spindle motor servo
26	SSTP	I	Input signal to detect disc inner most trak
27	FST0	O	2/3 divider output (Not used)
28	DVDD1	—	Digital power supply
29	SFDR	O	Sled drive output
30	SRDR	O	
31	TFDR	O	Tracking drive output
32	TRDR	O	
33	FFDR	O	Focus drive output
34	FRDR	O	
35	DVSS1	—	Digital ground
36	TEST	I	TEST pin connected normally ground
37	TES1	I	
38	VC	I	Center voltage input
39	FE	I	FOCUS error signal input
40	SE	I	Sled error signal input

Pin No.	Pin Name	I/O	Function
41	TE	I	Tracking error signal input
42	CE	I	Center servo analog input
43	RFDC	I	RF signal input
44	ADI0	O	Test pin (Not used)
45	AVSS0	—	Analog ground
46	IGEN	I	Power supply pin operational amplifiers
47	AVDD	—	Analog power supply
48	ASYO	O	EFM full swing output
49	ASYI	I	Asymmetry comparate voltage input
50	RFAC	I	EFM signal input
51	AVSS1	—	Analog ground
52	CLTV	I	Control voltage input for master VCO
53	FILO	O	Filter output for master PLL
54	FILI	I	Filter input for master PLL
55	PCO	O	Charge-pump output for master PLL
56	AVDD1	—	Analog power supply
57	BIAS	I	Asymmetry circuit constant current input
58	VCTL	I	Control voltage input for variable pitch PLL
59	V16M	I/O	16.9344MHz output (Not used)
60	VPCO	O	Charge-pump output for variable pitch PLL (Not used)
61	DVDD2	—	Digital power supply
62	ASYE	I	Asymmetry circuit ON/OFF (Connected to +5V.)
63	MD2	I	Digital-out ON/OFF control (Connected to +5V.)
64	DOUT	O	Digital-out output
65	LRCK	O	48-bit slot D/A interface, LR clock output
66	PCMD	O	48-bit slot D/A interface, Serial deta output
67	BCLK	O	48-bit slot D/A interface, bit clock output
68	EMPH	O	Playback disc output in emphasis mode (Not used)
69	XTSL	I	X'tal selection input pin
70	DVSS2	—	Digital ground
71	XTAI	I	X'tal oscillator circuit input
72	XTAO	O	X'tal oscillator circuit output (Not used)
73	SOUT	O	(Not used)
74	SOCK	O	
75	XOCT	O	
76	SQSO	O	Sub-Q serial output
77	SQCK	I	Clock input for SQSO read-out
78	SCSY	I	Sub-code input
79	SBSO	O	Sub-P through Sub-W serial output (Not used)
80	EXCR	I	Clock input for SBSO read-out

• **IC101 CXA2523AR RF Amplifier (BD (MD) BOARD)**

Pin No.	Pin Name	I/O	Function
1	I	I	I-V converted RF signal I input
2	J	I	I-V converted RF signal J input
3	VC	O	Middle point voltage (+1.5V) generation output
4 to 9	A to F	I	Signal input from the optical pick-up detector
10	PD	I	Light amount monitor input
11	APC	O	Laser APC output
12	APCREF	I	Reference voltage input for setting laser power
13	GND	—	Ground
14	TEMPI	I	Temperature sensor connection
15	TEMPR	O	Reference voltage output for the temperature sensor
16	SWDT	I	Serial data input from the CXD2662R
17	SCLK	I	Serial clock input from the CXD2662R
18	XLAT	I	Latch signal input from the CXD2662R "L": Latch
19	XSTBY	I	Stand by signal input "L": Stand by
20	F0CNT	I	Center frequency control voltage input of BPF22, BPF3T, EQ from the CXD2662R
21	VREF	O	Reference voltage output (Not used)
22	EQADJ	I/O	Center frequency setting pin for the internal circuit EQ
23	3TADJ	I/O	Center frequency setting pin for the internal circuit BPF3T
24	Vcc	—	+3V power supply
25	WBLADJ	I/O	Center frequency setting pin for the internal circuit BPF22
26	TE	O	Tracking error signal output to the CXD2662R
27	CSLED	—	External capacitor connection pin for the sled error signal LPF
28	SE	O	Sled error signal output to the CXD2662R
29	ADFM	O	FM signal output of ADIP
30	ADIN	I	ADIP signal comparator input ADFM is connected with AC coupling
31	ADAGC	—	External capacitor connection pin for AGC of ADIP
32	ADFG	O	ADIP duplex signal output to the CXD2662R
33	AUX	O	I_3 signal/temperature signal output to the CXD2662R (Switching with a serial command)
34	FE	O	Focus error signal output to the CXD2662R
35	ABCD	O	Light amount signal output to the CXD2662R
36	BOTM	O	RF/ABCD bottom hold signal output to the CXD2662R
37	PEAK	O	RF/ABCD peak hold signal output to the CXD2662R
38	RF	O	RF equalizer output to the CXD2662R
39	RFAGC	—	External capacitor connection pin for the RF AGC circuit
40	AGCI	I	Input to the RF AGC circuit The RF amplifier output is input with AC coupling
41	COMPO	O	User comparator output (Not used)
42	COMPP	I	User comparator input (Fixed at "L")
43	ADDC	I/O	External capacitor pin for cutting the low band of the ADIP amplifier
44	OPO	O	User operation amplifier output (Not used)
45	OPN	I	User operation amplifier inversion input (Fixed at "L")
46	RFO	O	RF amplifier output
47	MORFI	I	Groove RF signal is input with AC coupling
48	MORFO	O	Groove RF signal output

• Abbreviation
APC: Auto Power Control
AGC: Auto Gain Control

• IC151 CXD2662R Digital Signal Processor, Digital Servo Signal Processor (BD (MD) BOARD)

Pin No.	Pin Name	I/O	Function
1	MNT0 (FOK)	O	FOK signal output to the system control (monitor output) “H” is output when focus is on
2	MNT1 (SHCK)	O	Track jump detection signal output to the system control (monitor output)
3	MNT2 (XBUSY)	O	Monitor 2 output to the system control (monitor output)
4	MNT3 (SLOC)	O	Monitor 3 output to the system control (monitor output)
5	SWDT	I	Writing data signal input from the system control
6	SCLK	I (S)	Serial clock signal input from the system control
7	XLAT	I (S)	Serial latch signal input from the system control
8	SRDT	O (3)	Reading data signal output to the system control
9	SENS	O (3)	Internal status (SENSE) output to the system control
10	XRST	I (S)	Reset signal input from the system control “L”: Reset
11	SQSY	O	Subcode Q sync (SCOR) output to the system control “L” is output every 13.3 msec. Almost all, “H” is output
12	DQSY	O	Digital In U-bit CD format or MD format subcode Q sync (SCOR) output to the system control
13	RECP	I	Laser power switching input from the system control “H”: Recording, “L”: Playback
14	XINT	O	Interrupt status output to the system control
15	TX	I	Recording data output enable input from the system control
16	OSCI	I	System clock input (512Fs=22.5792 MHz)
17	OSCO	O	System clock output (512Fs=22.5792 MHz) (Not used)
18	XTSL	I	System clock frequency setting “L”: 45.1584 MHz, “H”: 22.5792 MHz (Fixed at “H”)
19	DIN0	I	Digital audio input (Optical input)
20	DIN1	I	Digital audio input (Optical input)
21	DOUT	O	Digital audio output (Optical output)
22	DADTI	I	Serial data input
23	LRCKI	I	LR clock input “H” : Lch, “L” : R ch
24	XBCKI	I	Serial data clock input
25	ADDT	I	Data input from the A/D converter
26	DADT	O	Data output to the D/A converter
27	LRCK	O	LR clock output for the A/D and D/A converter (44.1 kHz)
28	XBCK	O	Bit clock output to the A/D and D/A converter (2.8224 MHz)
29	FS256	O	11.2896 MHz clock output (Not used)
30	DVDD	—	+3V power supply (Digital)
31 to 34	A03 to A00	O	DRAM address output
35	A10	O	DRAM address output (Not used)
36 to 40	A04 to A08	O	DRAM address output
41	A11	O	DRAM address output (Not used)
42	DVSS	—	Ground (Digital)
43	XOE	O	Output enable output for DRAM
44	XCAS	O	$\overline{\text{CAS}}$ signal output for DRAM
45	A09	O	Address output for DRAM
46	XRAS	O	$\overline{\text{RAS}}$ signal output for DRAM
47	XWE	O	Write enable signal output for DRAM

* I (S) stands for Schmidt input, I (A) for analog input, O (3) for 3-state output, and O (A) for analog output in the column I/O

Pin No.	Pin Name	I/O	Function
48	D1	I/O	Data input/output for DRAM
49	D0	I/O	
50, 51	D2, D3	I/O	
52	MVCI	I (S)	Clock input from an external VCO (Fixed at “L”)
53	ASYO	O	Playback EFM duplex signal output
54	ASYI	I (A)	Playback EFM comparator slice level input
55	AVDD	—	+3V power supply (Analog)
56	BIAS	I (A)	Playback EFM comparator bias current input
57	RFI	I (A)	Playback EFM RF signal input
58	AVSS	—	Ground (Analog)
59	PCO	O (3)	Phase comparison output for the recording/playback EFM master PLL
60	FILI	I (A)	Filter input for the recording/playback EFM master PLL
61	FILO	O (A)	Filter output for the recording/playback EFM master PLL
62	CLTV	I (A)	Internal VCO control voltage input for the recording/playback EFM master PLL
63	PEAK	I (A)	Light amount signal peak hold input from the CXA2523AR
64	BOTM	I (A)	Light amount signal bottom hold input from the CXA2523AR
65	ABCD	I (A)	Light amount signal input from the CXA2523AR
66	FE	I (A)	Focus error signal input from the CXA2523AR
67	AUX1	I (A)	Auxiliary A/D input
68	VC	I (A)	Middle point voltage (+1.5V) input from the CXA2523AR
69	ADIO	O (A)	Monitor output of the A/D converter input signal (Not used)
70	AVDD	—	+3V power supply (Analog)
71	ADRT	I (A)	A/D converter operational range upper limit voltage input (Fixed at “H”)
72	ADRB	I (A)	A/D converter operational range lower limit voltage input (Fixed at “L”)
73	AVSS	—	Ground (Analog)
74	SE	I (A)	Sled error signal input from the CXA2523AR
75	TE	I (A)	Tracking error signal input from the CXA2523AR
76	DCHG	I (A)	Connected to +3V power supply
77	APC	I (A)	Error signal input for the laser digital APC (Fixed at “L”)
78	ADFG	I (S)	ADIP duplex FM signal input from the CXA2523AR (22.05 ± 1 kHz)
79	F0CNT	O	Filter f_0 control output to the CXA2523AR
80	XLRF	O	Control latch output to the CXA2523AR
81	CKRF	O	Control clock output to the CXA2523AR
82	DTRF	O	Control data output to the CXA2523AR
83	APCREF	O	Reference PWM output for the laser APC
84	TEST0	O	PWM output for the laser digital APC (Not used)
85	TRDR	O	Tracking servo drive PWM output (–)

• Abbreviation
EFM: Eight to Fourteen Modulation
PLL : Phase Locked Loop
VCO: Voltage Controlled Oscillator

Pin No.	Pin Name	I/O	Function
86	TFDR	O	Tracking servo drive PWM output (+)
87	DVDD	—	+3V power supply (Digital)
88	FFDR	O	Focus servo drive PWM output (+)
89	FRDR	O	Focus servo drive PWM output (–)
90	FS4	O	176.4 kHz clock signal output (X'tal) (Not used)
91	SRDR	O	Sled servo drive PWM output (–)
92	SFDR	O	Sled servo drive PWM output (+)
93	SPRD	O	Spindle servo drive PWM output (–)
94	SPFD	O	Spindle servo drive PWM output (+)
95	FGIN	I (S)	Test input (Fixed at "L")
96 to 98	TEST1 to TEST3	I	
99	DVSS	—	Ground (Digital)
100	EFMO	O	EFM output when recording

- Abbreviation
  EFM: Eight to Fourteen Modulation

• IC1001 M30805SGP SYSTEM CONTROL (DIGITAL BOARD)

Pin No.	Pin Name	I/O	Function
1	————	—	Not used.
2	————	—	Not used.
3	LVLI	—	Not used.
4	LVLO	—	Not used.
5	(TXD3)	—	Not used.
6	(RXD3)	—	Not used.
7	(CLK3)	—	Not used.
8	MUTE	O	Line out muting output. L: Mute
9	DARST	O	Reset signal output to the D/A converter. L: Active
10	SLICERSEL	O	IEC958 input select signal output to the D/A converter. L: CD H: MD
11	LD-LOW	O	Loading motor voltage control output L: High voltage H: Low voltage
12	LDIN	I	Loading motor control input. H: IN
13	LDOUT	O	Loading motor control output. H: OUT
14	MOD	O	Laser modulation switching signal output. L: OFF H: ON
15	BYTE	I	Data bus changed input. (Connected to ground.)
16	CNVSS	—	Ground.
17	X-CIN	O	Sub clock input. (32.768kHz) (Not used.)
18	X-COUT	O	Sub clock output. (32.768kHz) (Not used.)
19	$\overline{\text{RESET}}$	I	System rest input. L : ON
20	XOUT	O	Main clock output. (10MHz)
21	VSS0	—	Ground.
22	XIN	I	Main clock input. (10MHz)
23	VCC0	—	Power supply. (+3.3V)
24	$\overline{\text{NMI}}$	I	Fixed at H. (Pull-up)
25	DQSY	I	Digital in sync input. (Record system)
26	P.DOWN	I	Power down detection input. L: Power down
27	SQSY	I	ADIP (MO) sync or subcode Q (PIT) sync input from CXD2662R.(Playback system)
28	NC	—	Not used.
29	LDON	O	Laser ON/OFF control output. H: Laser ON
30	LIMIT-IN	I	Detection input from the limit switch. L: Sled limit-In H: Sled limit-Out
31	C2-PWM-B	—	Not used.
32	XINIT	I	Interrupt status input from CXD2662R.
33	————	—	Not used.
34	XELT	I	XELT input from DSP IC.
35	WR PWR	O	Write power ON/OFF output. L: OFF H: ON
36	IIC CLK	I/O	IIC serial clock input/output.
37	IIC DATA	I/O	IIC serial data input/output.
38	SWDT	O	Writing data signal output to the serial bus.
39	VCC1	—	Power supply. (+3.3V)
40	SRDT	I	Reading data signal input from the serial bus.
41	VSS1	—	Ground.
42	SCLK	O	Clock signal output to the serial bus.
43	REC-SW	I	Detection signal input from the recording position detection switch. L: REC
44	CLIP DTO	O	CLIP serial data output.
45	CLIPDTI	I	CLIP serial data input. (Not used.)
46	CLIP CLK	O	CLIP serial clock output. (Not used.)
47	DIG-RST	O	Digital rest signal output to the CXD2662R and motor driver. L: Reset
48	SENS	I	Internal status (SENSE) input from the CXD2662R.
49	PLAY-SW	I	Detection signal input from the playback position detection switch. L: PLAY
50	XLAT	O	Latch signal output to DSP IC.
51	OUT-SW	I	Detection signal input from the loading out detection switch.
52	————	—	Not used.

Pin No.	Pin Name	I/O	Function
53	————	—	Not used.
54	————	—	Not used.
55	————	O	Not used.
56	MNT2 (XBUSY)	I	In the state of executive command from the CXD2662R
57	VSS2	—	Ground.
58	MNT1 (SHCK)	I	Track jump signal input from the CXD2662R
59	VCC2	—	Power supply. (+3.3V)
60	EEP-WP	O	EEP-ROM write protect signal output. L: write possibility
61	SDA (EEP)	I/O	Data signal input/output pin with the EEP-ROM.
62	BCLK/ALE/CLKO	—	Not used.
63	$\overline{RD}$/$\overline{DW}$	O	Read signal output.
64	$\overline{BHE}$/$\overline{CASH}$	—	Not used.
65	$\overline{WR}$/$\overline{CASL}$	O	Write signal output.
66	SCL	O	Clock signal output to the EEP-ROM.
67	REFLECT	I	Disk reflection rate detection input from the reflect detection switch. H: Disk with low reflection rate
68	PROTECT	I	Recording-protection claw detection input from the protection detection switch. H: Protect
69	$\overline{CS0}$	O	Chip select signal output to the Flash ROM.
70	$\overline{CS1}$	O	Not used.
71	————	O	Not used.
72	A20	O	Address bus signal output to Flash ROM.
73	A19	O	Address bus signal output to Flash ROM.
74	VCC3	—	Power supply. (+3.3V)
75	A18	O	Address bus signal output to Flash ROM.
76	VSS3	—	Ground
77 to 85	A17 to A9	O	Address bus signal output to Flash ROM.
86 to 89	SEL 3 to 0	O	Not used.
90	WP	O	Write protect signal to the Flash ROM.
91	VCC4	—	Power supply. (+3.3V)
92	A8	O	Address bus signal output to Flash ROM.
93	VSS4	—	Ground.
94 to 100	A7 to A1	O	Address bus signal output to Flash ROM.
101	$\overline{LB}$	—	Not used.
102 to 113	D15 to D4	I/O	Data bus signal input/output to the Flash ROM.
114	CLIP-SEL	O	Not used.
115	IIC BUSY	O	IIC cable connect check. L: Active
116	DALOCK	O	LOCK signal input from D/A converter.
117	LINE-MUTE	O	Not used.
118	ADP DOWN	O	Reset signal output to the A/D converter.
119 to 122	D3 to D0	I/O	Data bus signal input/output to the Flash ROM.
123	SPDIF-CUT	—	Jog dial pulse input from the rotary encoder.
124	OPT SEL	O	Optical select signal output.
125 to 129	————	—	Not used.
130	VSS5	—	Ground.
131	————	O	Not used.
132	VCC5	—	Power supply. (+3.3V)
133	OP-LEVEL	I	Optical Pick-up voltage (current) detect signal input.
134 to 139	————	—	Not used.
140	AVSS	—	Ground. (Analog)
141	————	—	Not used.
142	VREF	—	Power supply. (+3.3V)
143	AVCC	—	Power supply. (+3.3V)
144	NC	I	Not used.

• IC401 M30620MCA-A54FP MASTER CONTROL (MAIN BOARD)

Pin No.	Pin Name	I/O	Descriptions
1	BD-DATA	O	CD data output.
2	BD-CLK	O	CD clock output.
3	BD-LAT	O	CD latch signal output.
4	AC-CUT	I	AC cut input. L= ON,H=OFF
5	N.C	—	Not used.
6	SQ-DATA-IN	I	Subcode Q data input.
7	SQ-CLK	I	Subcode Q data input.
8	GND	—	Connected to ground.
9	GND	—	Connected to ground.
10	XC IN	I	SUB CLOCK input. (32.768kHz)
11	XC OUT	O	SUB CLOCK output. (32.768kHz)
12	RESET	I	System reset input.
13	X-OUT	O	MAIN SYSTEM CLOCK output. (16MHz)
14	VSS	—	Vss
15	X-IN	I	MAIN SYSTEM CLOCK input. (16MHz)
16	VCC	—	Power supply. (+5V)
17	NMI	I	PULL UP (EVER +5V)
18	WAKE_UP	I	WAKE UP signal input. (L)
19	SCOR	I	CD Q-data request signal input.
20	RDS-INT	I	RDS interrupt signal input.
21	RDS-DATA	I	RDS data signal input.
22	CD-POWER	O	CD-POWER ON/OFF signal output. H=ON, L=OFF
23	STBY-RELAY	O	STANDBY relay control signal output.
24	PROTECT	I	Speaker protect signal input. L=ON, H=OFF
25	STK-MUTE	O	Power amplifier mute ON/OFF signal output. H=ON, L=OFF
26	RWLAY-H	O	Speaker terminal relay control signal output. H=ON, L=OFF
27	N.C	I	Not used.
28	REAR-RELAY	O	Rear speaker relay control signal output.(Not used.)
29	IIC_CLK	O	IIC SCL output.
30	IIC_DATA	O	IIC SDA output.
31	TXD1 (LD ON)	O	Write data output for FLASH connector/LD ON signal output.
32	SQ-DATA (X1-X2)	O	Read data output for FLASH connector/X'tal select signal output.
33	SQ-CLK (DA-MUTE)	O	Clock data output for FLASH connector/D/A converter mute signal output.
34	RST1 (OPT SEL)	O	Reset output for FLASH connector/Optical select signal output.
35	HEAD PHONE	I	Head phone signal detect. H=ON,L=OFF
36	LINE-MUTE	O	Line mute signal output. L=ON, H=OFF
37	MD/P-DOWN	O	MDM power down
38	TEST	I	Test terminal
39	CLOCK-OUT	I	Clock check signal input. (Not used.)
40	PL-LAT	O	Latch output to PRO-LOGIC IC
41	PL-CLK/SUR1	O	Clock output to PRO-LOGIC IC/Surround control signal output
42	PL-DATA/SUR2	O	Data output to PRO-LOGIC IC/Surround control signal output
43	502-LAT	O	Latch output to sound processor

Pin No.	Pin Name	I/O	Descriptions
44	502-DATA	O	Data output to sound processor
45	502-CLK	O	Clock output to sound processor
46	ST-CLK	O	TUNER clock signal output.
47	ST-DIN	I	TUNER data input.
48	ST-DOUT	O	TUNER data output.
49	ST-CE	O	TUNER chip eneble output.
50	TUNED	I	TUNED detect signal input. L=ON, H=OFF
51	STEREO	I	STEREO detect signal input. L=ON, H=OF
52	ST-MUTE	O	Tuner mute signal output.
53	AMS-IN	I	AMS signal input. L=ON,H=OFF”
54	TC-MUTE	O	Tape deck line mute ON/OFF signal output. H=ON, L=OFF
55	$\overline{\text{R}}$/PB/PAS	I	REC/PB/PASS select signal input.
56	NR-ON/$\overline{\text{OFF}}$	O	DOLBY NR ON/OFF signal output. H=ON, L=OFF
57	$\overline{\text{REC-MUTE}}$	O	REC mute ON/OFF signal output. L=ON, H=OFF
58	BAIS	O	BIAS ON/OFF signal output.H=ON, L=OFF
59	EQ-H/$\overline{\text{N}}$	O	EQ High/Normal select signal output. H=High, L=Normal
60	PB-$\overline{\text{A}}$/B	O	Playback deckA/B select signal output. H=deckB, L=deckA
61	$\overline{\text{ALC}}$	O	ALC ON/OFF signal output. L=ON, H=OFF
62	VCC	—	Power Supply (+5V)
63	TC-RELAY	O	Tape deck relay ON/OFF signal output. H=ON, L=OFF
64	VSS	—	Ground.
65	A TRIG	O	A deck trigger control signal output.H=ON, L-OFF
66	B TRIG	O	B deck trigger control signal output.H=ON, L-OFF
67	CAPM-H/L	O	Capstan motor High/Low speed control signal output.
68	CAPM-CONT	O	Capstan motor REV/FWD/STOP control signal output.H=REV, L=FWD/STOP
69	A HALF	I	A deck half detect signal input.
70	A PLAY	I	A deck play detect signal input.
71	B PLAY	I	B deck play detect signal input.
72	IIC-BUSY	I	IIC_BUSY(Not used.)
73	LOD-POS	O	CD loading motor control signal output
74	LOD-NEG	O	CD loading motor control signal output
75	OUT SW	I	Detection input from the tray open/close detect switch (S708) on the CD mechanism block
76	MIDOUT SW	I	Detection input from the mid out detect switch (S701) on the CD mechanism block
77	IN SW	I	Detection input from the tray open/close detect switch (S704) on the CD mechanism block
78	MIDIN SW	I	Detection input from the mid in detect switch (S703) on the CD mechanism block
79	CLP-POS	O	CD elevator up/down motor (M701) control signal output to the motor driver IC (IC701)
80	CLP-NEG	O	CD elevator up/down motor (M701) control signal output to the motor driver IC (IC701)
81	INIT SW	I	Detection input from the INIT detection switch (S705) on the CD mechanism block
82	CNT-SW	I	Detection input from the count detect switch (S706) on the CD mechanism block
83 to 85	ENC2, ENC1, ENC0	I	Detection input from the disc tray address detect rotary encoder (S707) on the CD mechanism block
86	DISC-SENS	I	Detection input from the disc in detect sensor (D704 and Q703) on the CD mechanism block
87	PRTC SW	I	Detection input from the CD tray door open/close detect switch (S702)
88	SOFT-TEST	—	Not used.

Pin No.	Pin Name	I/O	Descriptions
89	A SHUT	O	A deck reel pulse detect signal output.
90	B SHUT	O	B deck reel pulse detect signal output.
91	B HALF/REC A/REC B	I	B deck half detect signal input./A deck or B deck record detect signal input.
92	MODEL-IN	I	MODEL input.
93	SPEC-IN	I	Version select signal input.
94	POWER	O	POWER ON/OFF signal output. H=ON, L=OFF
95	SENS	I	BD condition signal input.
96	AVSS	—	Analog ground.
97	HOLD	O	MODE signal input.
98	VREF	—	Analog Reference Voltage
99	AVCC	—	Analog Power Supply
100	XRST	O	CD reset signal output.

• **IC701 TMP88CS77AF-1A84 SYSTEM CONTROL (PANEL BOARD)**

Pin No.	Pin Name	I/O	Descriptions
1	LED SEL	O	LED select signal output
2 to 12	LED0 to LED10	O	LED driver output
13	STANDBY LED	O	STANDBY LED driver output
14	TIMER LED	O	TIMER SEL LED driver output
15, 16	VOLUME A, B	I	Rotary encoder pulse input
17 to 22	BPF1 to BPF5	I	Rec level signal input
23	L+R	I	Rec level signal input for feedback
24 to 26	KEY 0 to KEY2	I	Key input
27	STICK 1	I	STICK CONTROL Up / Down
28	STICK 2	I	STICK CONTROL Right / Left
29	VSS	—	Ground
30	VASS	—	Ground
31	VAREF	—	Analog reference voltage
32	VDD	—	Power supply
33	GRID EXT CLK	O	Clock output for GRID EXTENDER
34	2G	O	FL gride signal output
35	1G	O	FL gride signal output
36 to 50	P35 to P49	O	FL segment signal output
51	VDD	—	Power supply
52	GRID EXT RESET	O	Reset output for GRID EXTENDER
53 to 86	P34 to P1	O	FL segment signal output
87	VKK	—	Power supply for FL segment signal output
88	VDD	—	Power supply
89	X IN	I	X'tal(12.5MHz) input
90	VSS	—	Ground
91	X OUT	O	X'tal(12.5MHz) output
92	RESET	I	RESET signal input
93	LED11	O	LED driver output
94	LED12	O	LED driver output(Not used)
95	TEST	I	Connected to ground
96	WAKE UP	O	WAKE-UP signal output
97	I2C data	O	IIC serial data output
98	I2C clk	O	IIC serial clock output
99	LED13	O	LED driver output
100	SIRCS	I	Remote commander input

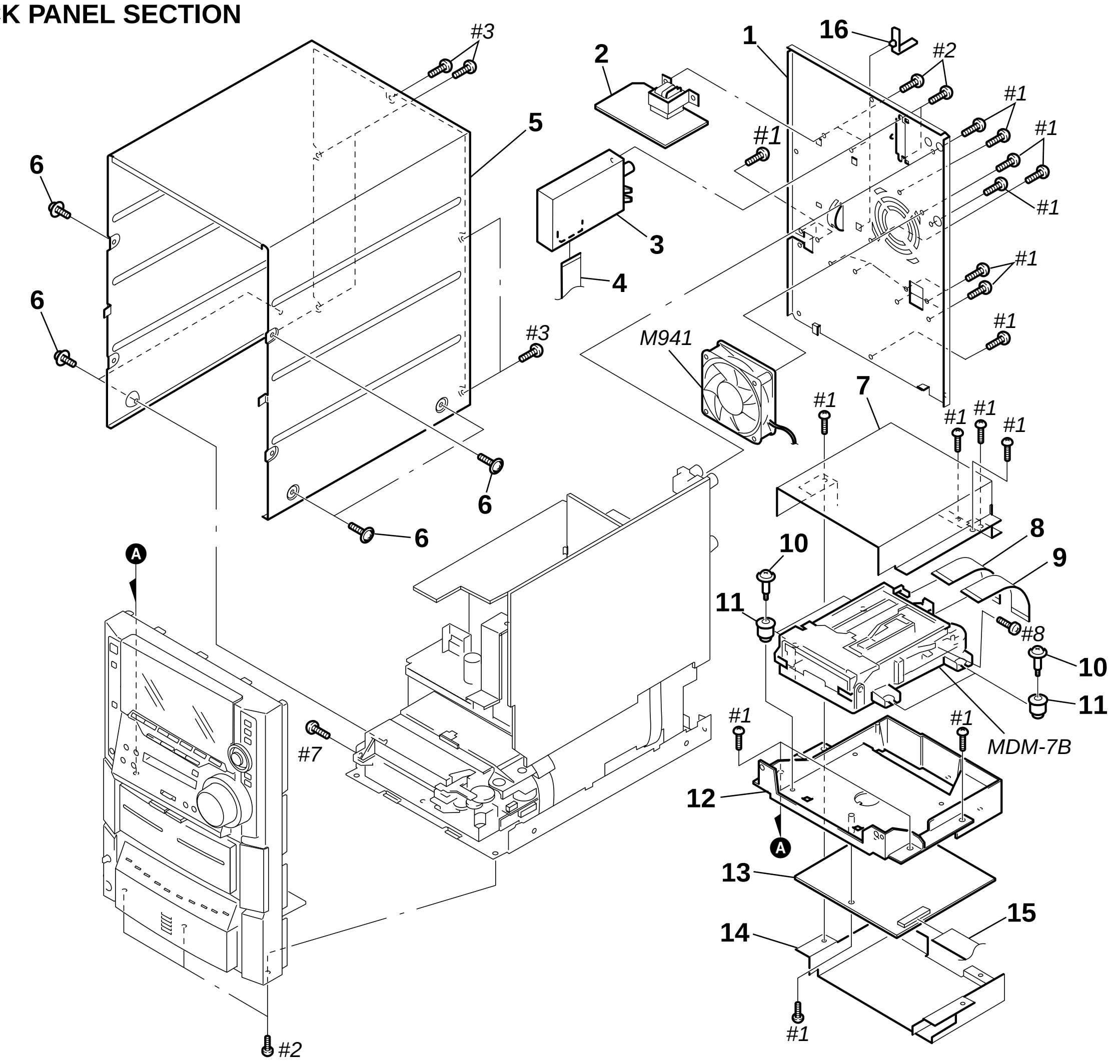
SECTION 8
EXPLODED VIEWS

NOTE:
- -XX, -X mean standardized parts, so they may have some differences from the original one.
- Items marked “*” are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.
- Hardware (# mark) list and accessories and packing materials are given in the last of this parts list.

- Abbreviation
  G : German model
  AED : North European model
  MX : Mexican model
  AR : Argentine model
  HK : Hong Kong model
  MY : Malaysia model
  SP : Singapore model
  KR : Korea model
  AUS : Australian model

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

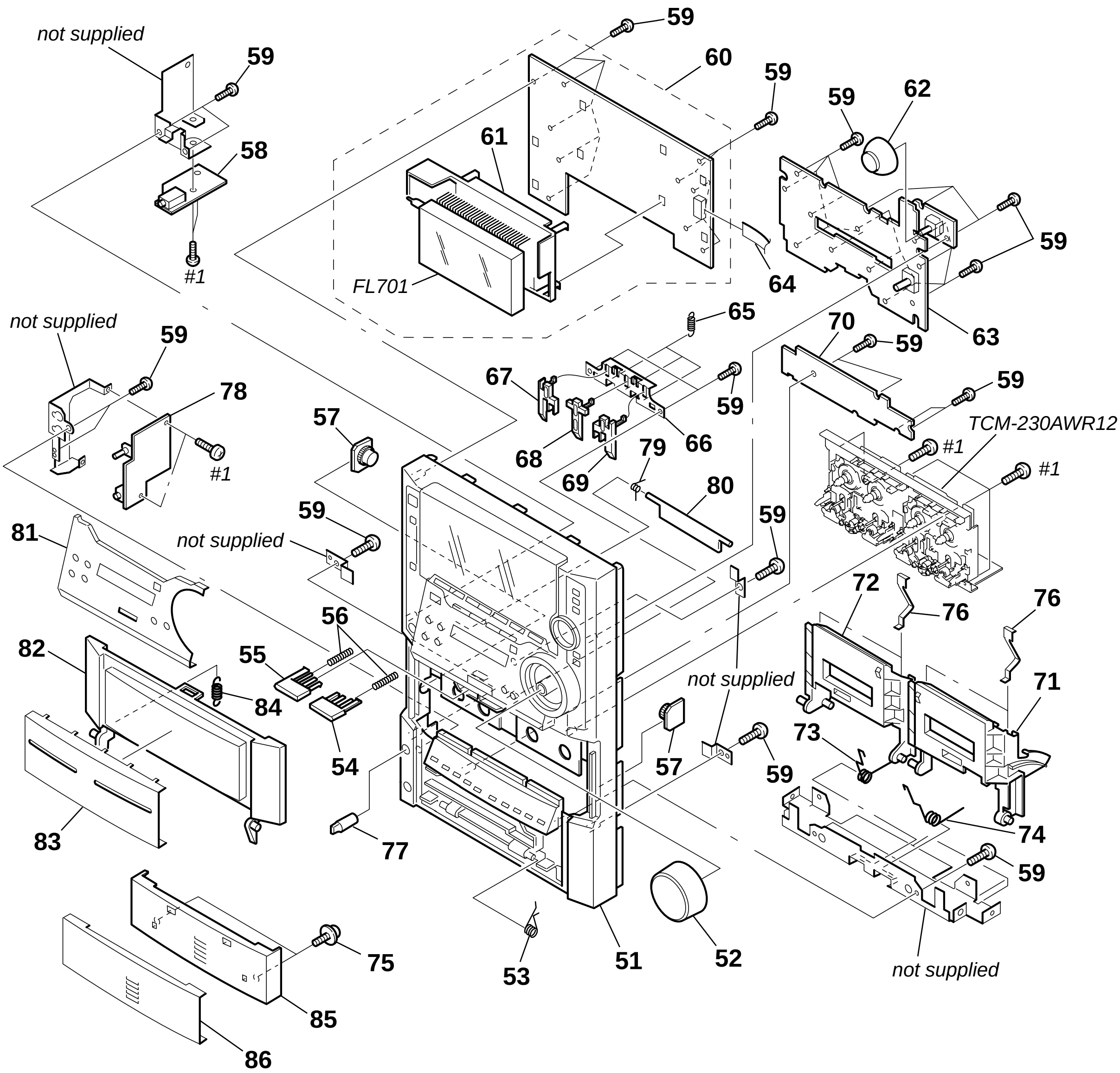
8-1. BACK PANEL SECTION



Ref. No.	Part No.	Description	Remarks
1	4-227-556-01	PANEL, BACK (US)	
1	4-227-556-21	PANEL, BACK (AEP,UK,G,AED,CIS)	
1	4-227-556-31	PANEL, BACK (MY,SP)	
1	4-227-556-41	PANEL, BACK (E)	
1	4-227-556-51	PANEL, BACK (AR)	
1	4-227-556-61	PANEL, BACK (HK)	
1	4-227-556-71	PANEL, BACK (MX)	
1	4-227-556-81	PANEL, BACK (AUS)	
1	4-227-556-91	PANEL, BACK (KR)	
2	1-676-976-11	SUB TRANS BOARD (US,AEP,UK,G,AED,CIS)	
3	1-693-481-41	TUNER (FM/AM) (US)	
3	1-693-482-41	TUNER (FM/AM) (MX,AR,HK,MY,SP,KR,AUS)	
3	1-693-484-41	TUNER (FM/AM) (E)	
3	1-693-499-41	TUNER (FM/AM) (AEP,UK,G,AED,CIS)	
4	1-769-972-11	WIRE (FLAT TYPE) (13 CORE) (U,E,MX,AR,HK,MY,SP,KR,AUS)	
4	1-773-004-11	WIRE (FLAT TYPE) (15 CORE) (AEP,UK,G,AED,CIS)	

Ref. No.	Part No.	Description	Remarks
5	4-226-746-01	CASE	
6	3-363-099-21	SCREW (CASE 3 TP2)	
7	4-228-556-01	PLATE (B), SHIELD (EXCEPT E,AUS)	
8	1-775-151-11	WIRE (FLAT TYPE) (17 CORE)	
9	1-775-236-11	WIRE (FLAT TYPE) (27 CORE)	
10	4-228-684-01	SCREW (+BVTPWH M3), STEP (HK)	
10	4-228-684-11	SCREW (+BVTPWH M3), STEP (EXCEPT HK)	
11	4-228-689-01	INSULATOR (HK)	
11	4-228-689-11	INSULATOR (EXCEPT HK)	
12	4-228-332-01	HOLDER (MD)	
13	A-4473-391-A	DIGITAL BOARD, COMPLETE (EXCEPT US)	
13	A-4473-874-A	DIGITAL BOARD, COMPLETE (US)	
14	4-228-555-01	SHIELD (U)	
15	1-773-217-11	WIRE (FLAT TYPE) (25 CORE)	
16	4-956-370-12	BAND, PLUG FIXED (HK,UK,AUS)	
M941	1-763-072-11	FAN, DC	

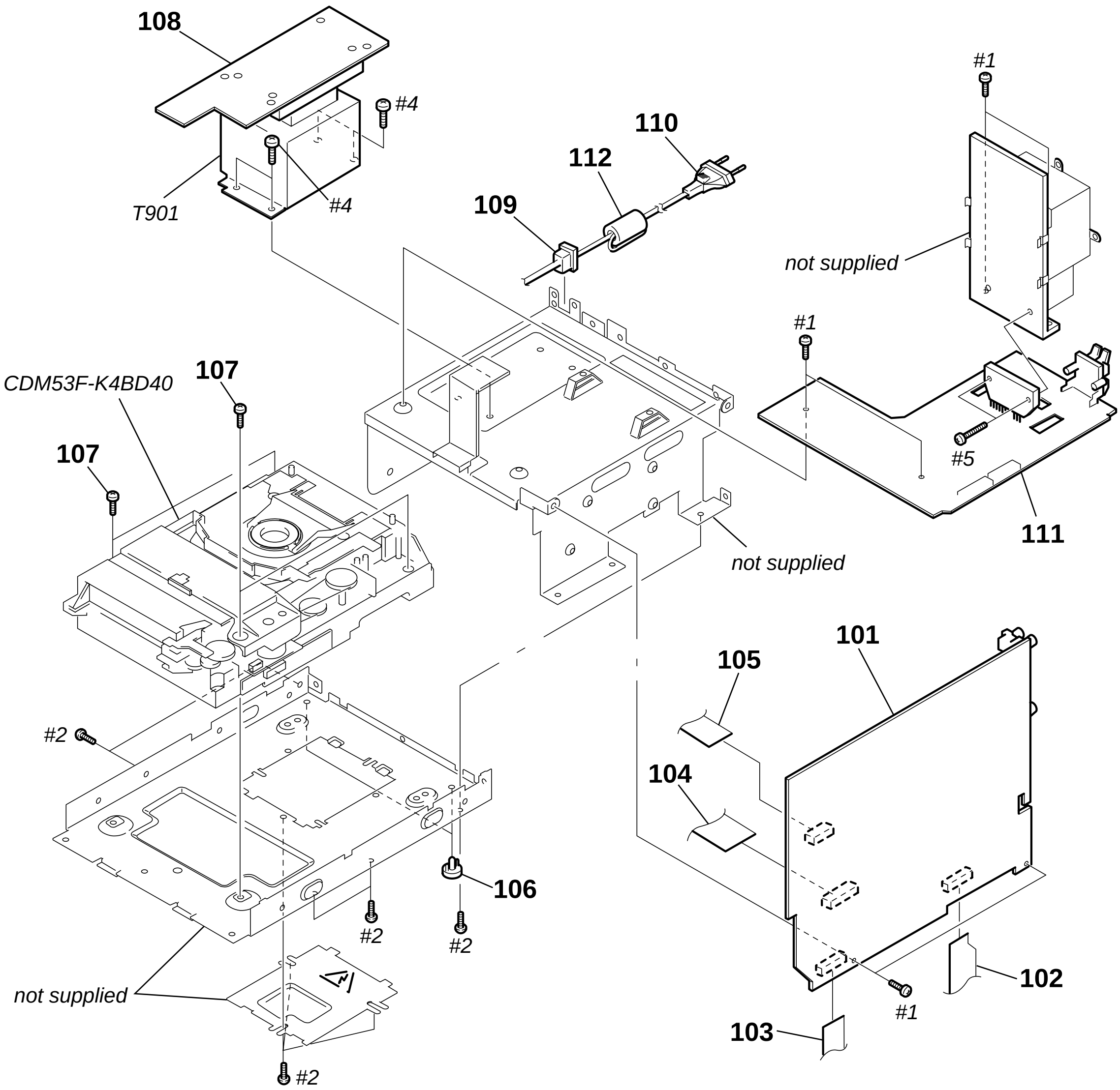
8-2. FRONT PANEL SECTION



Ref. No.	Part No.	Description	Remarks
51	X-4952-911-1	PANEL ASSY, FRONT (US,E,MX,AR,AUS)	
51	X-4952-912-1	PANEL ASSY, FRONT (AEP,UK,G,AED,CIS)	
51	X-4952-913-1	PANEL ASSY, FRONT (HK,MY,SP,KR)	
52	4-226-715-01	KNOB, VOLUEME	
53	4-226-897-01	SPRING (CD)	
54	4-226-735-01	BUTTON (B), EJECT	
55	4-226-734-01	BUTTON (A), EJECT	
56	4-226-537-01	SPRING (TC EJECT), COIL	
57	4-224-104-11	DAMPER	
58	1-676-971-11	HP BOARD	
59	4-951-620-01	SCREW (2.6X8), +BVTP	
60	A-4473-381-A	PANEL BOARD, COMPLETE (US,E,MX,AR,AEP,UK,G,AED,CIS,AUS)	
60	A-4473-880-A	PANEL BOARD, COMPLETE (SP,MY,HK,KR)	
61	4-226-723-01	HOLDER (FL)	
62	4-226-713-01	CURSOR	
63	A-4473-383-A	SUB PANEL BOARD, COMPLETE	
64	1-769-938-11	WIRE (FLAT TYPE) (11 CORE)	
65	4-227-544-01	SPRING, TENSION	
66	4-226-755-01	COVER, LOCK	
67	4-226-733-01	LOCK (B)	

Ref. No.	Part No.	Description	Remarks
68	4-226-731-01	LOCK (LID)	
69	4-226-732-01	LOCK (A)	
70	A-4428-661-A	CD SW BOARD, COMPLETE	
71	X-4952-712-1	HOLDER (B) ASSY, TC	
72	X-4952-711-1	HOLDER (A) ASSY, TC	
73	4-227-458-01	SPRING (TC A)	
74	4-227-459-01	SPRING (TC B)	
75	4-957-577-01	SCREW PTP WH (2.6X8) (DIA. 10)	
76	4-959-229-11	DETENT, CASSETTE	
77	4-214-385-91	KNOB (MIC) (E,MX,AR,HK,MY,SP,KR,AUS)	
78	1-676-972-11	MIC BOARD (HK,MY,SP,KR)	
79	4-228-323-01	SPRING (MD)	
80	4-228-335-01	LID (MD)	
81	4-226-712-51	PANEL (STR), ALUMINUM	
82	4-226-729-01	LID,TC	
83	4-226-728-01	PANEL (TC), ALUMINUM	
84	4-227-460-01	SPRING, TENSION	
85	4-226-737-01	LID (CD)	
86	4-226-741-01	PANEL (CD), ALUMINUM	
FL701	1-517-984-11	INDICATOR TUBE, FLUORESCENT	

8-3. CHASSIS SECTION

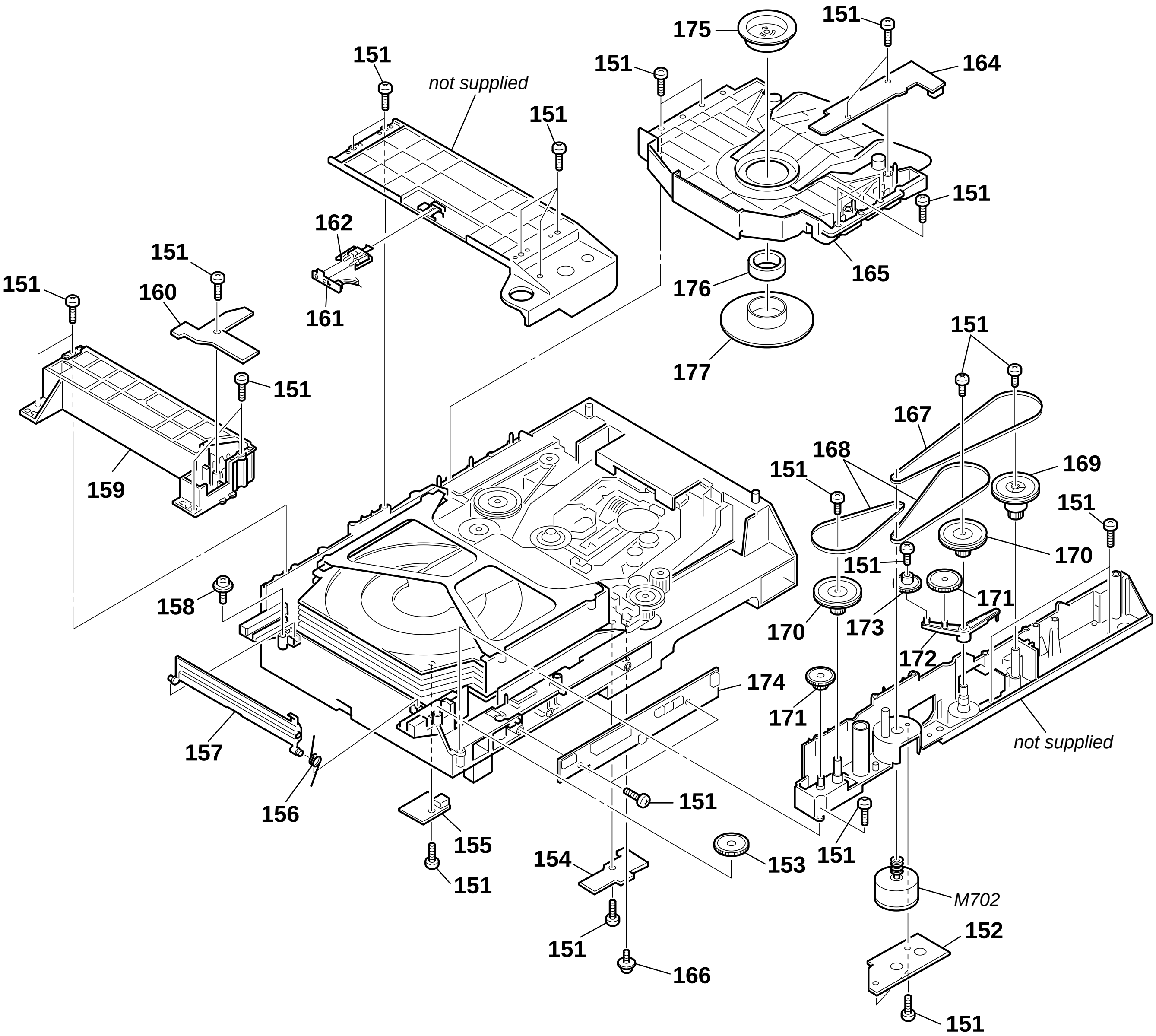


The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

Ref. No.	Part No.	Description	Remarks
101	A-4473-375-A	MAIN BOARD, COMPLETE (US)	
101	A-4473-380-A	MAIN BOARD, COMPLETE (HK,MY,SP,KR)	
101	A-4473-390-A	MAIN BOARD, COMPLETE (AEP,UK,G,AED,CIS)	
101	A-4473-878-A	MAIN BOARD, COMPLETE (E,MX,AR)	
101	A-4475-201-A	MAIN BOARD, COMPLETE (AUS)	
102	1-757-179-11	WIRE (FLAT TYPE) (19 CORE)	
103	1-773-042-11	WIRE (FLAT TYPE) (17 CORE)	
105	1-773-020-11	WIRE (FLAT TYPE) (15 CORE)	
106	4-965-822-01	FOOT	
107	3-970-608-11	SUMITITE (B3), +BV	
108	1-676-975-11	TRANS BOARD	
109	3-703-571-11	BUSHING (S) (4516), CORD (E,MX)	
* 109	3-703-244-00	BUSHING (2104), CORD (EXCEPT E,MX)	
⚠110	1-690-608-11	CORD, POWER (AUS)	
⚠110	1-769-079-21	CORD, POWER (KR)	

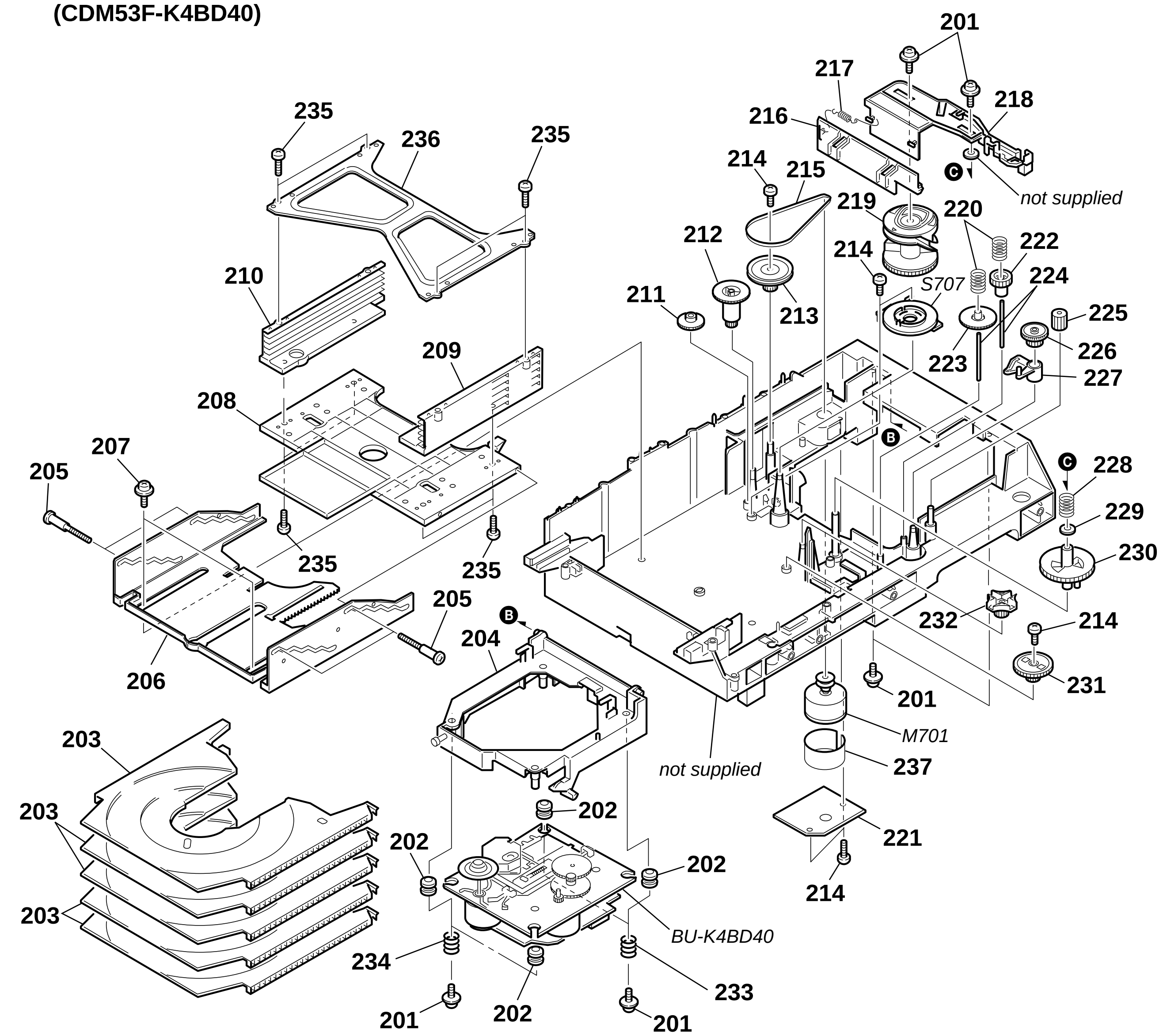
Ref. No.	Part No.	Description	Remarks
⚠110	1-777-071-51	CORD, POWER (HK,MY,SP,AEP,UK,G,AED,CIS)	
⚠110	1-783-531-11	CORD, POWER (US)	
⚠110	1-783-941-21	CORD, POWER (AR)	
⚠110	1-791-901-11	CORD, POWER (E,MX)	
111	A-4473-371-A	FRONT AMP BOARD, COMPLETE (US)	
111	A-4473-377-A	FRONT AMP BOARD, COMPLETE (HK,MY,SP,KR,AUS)	
111	A-4473-386-A	FRONT AMP BOARD, COMPLETE (AEP,UK,G,AED,CIS)	
111	A-4473-876-A	FRONT AMP BOARD, COMPLETE (E,MX,AR)	
112	1-500-386-11	FILTER, CLAMP (FERRITE CORE)	
⚠T901	1-435-535-11	TRANSFORMER, POWER (E,MX,AR,HK,MY,SP,KR,AUS)	
⚠T901	1-435-536-11	TRANSFORMER, POWER (AEP,UK,G,AED,CIS)	
⚠T901	1-435-538-11	TRANSFORMER, POWER (US)	

8-4. CD MECHANISM DECK SECTION-1
(CDM53F-K4BD40)



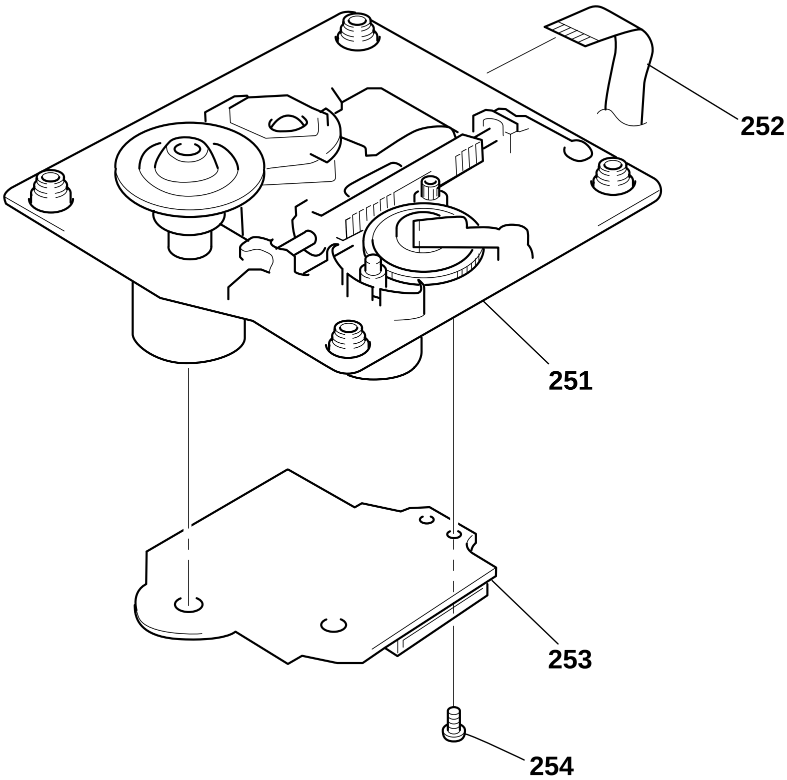
Ref. No.	Part No.	Description	Remarks
151	4-218-253-11	SCREW (M2.6), +BTTP	
152	1-671-508-11	LOAD MOTOR BOARD	
153	4-211-215-01	GEAR (EJECT)	
154	1-671-502-11	INT/COUNT SW BOARD	
155	1-671-504-11	SENSOR BOARD	
156	4-212-676-01	SPRING (LID), TORSION	
157	4-212-674-01	LID (DISC)	
158	4-985-672-01	SCREW (+PTPWH M2.6), FLOATING	
159	A-4672-873-A	BASE (GUIDE) ASSY, FITTING	
160	1-671-503-11	OUT SW BOARD	
161	1-671-789-11	SENSOR 2 BOARD	
162	4-964-461-02	HOLDER (SENSOR)	
164	1-671-505-11	IN SW BOARD	
165	A-4672-872-D	BASE (MAGNET) ASSY, FITTING	
166	3-341-549-01	SCREW (2.6X12) (DIA.7.5),+PTP WH	
167	4-211-235-01	BELT (COMMUNICATION)	
168	4-211-236-01	BELT (LOADING)	
169	4-211-231-01	PULLEY (MODE)	
170	4-211-214-01	PULLEY (LD)	
171	4-211-232-01	GEAR (LD DECELERATION)	
172	4-211-228-01	LEVER (GOOSENECK)	
173	4-214-130-01	GEAR (TRAY)	
174	1-671-506-11	CONNECTOR BOARD	
175	4-225-368-01	PULLEY (C), CHUCKING	
176	1-471-061-11	MAGNET ASSY	
177	X-4952-936-1	PULLEY (A) ASSY, CHUCKING	
M702	X-4950-342-1	MOTOR (LOADING) ASSY	

8-5. CD MECHANISM DECK SECTION-2
(CDM53F-K4BD40)



Ref. No.	Part No.	Description	Remarks
201	4-985-672-01	SCREW (+PTPWH M2.6), FLOATING	
202	4-220-933-01	INSULATOR	
203	4-211-212-51	TRAY (SUB)	
204	X-4950-322-3	HOLDER (BU) ASSY	
205	4-211-244-01	SCREW, STEP	
206	4-211-223-01	SLIDER (U/D)	
207	4-933-134-01	SCREW (M2.6), +PTPWH	
208	4-221-504-01	BASE (STOCKER), FITTING	
209	4-211-211-01	STOCKER (R)	
210	4-211-210-01	STOCKER (L)	
211	4-211-215-01	GEAR (EJECT)	
212	4-211-232-01	GEAR (MODE DECELERATION)	
213	4-211-214-01	PULLEY (LD)	
214	4-218-253-31	SCREW (M2.6), +BTTP	
215	4-211-237-01	BELT (MODE)	
216	4-212-677-01	SLIDER (SHUTTER)	
217	4-212-678-01	SPRING (SHUTTER), TENSION	
218	4-211-233-01	SLIDER (SELECTION)	
219	4-211-230-01	GEAR (CHUCKING)	
220	4-211-245-01	SPRING, COMPRESSION	
221	1-671-507-11	CLAMP MOTOR BOARD	
222	4-211-221-01	GEAR (LD MOVABLE)	
223	4-211-217-01	GEAR (SELECTION)	
224	4-211-242-11	SHAFT (SELECTION GEAR)	
225	4-211-240-01	GEAR (LD DECELERATION B)	
226	4-211-216-01	GEAR (RELAY)	
227	4-211-241-01	LEVER (SELECTION)	
228	4-216-879-01	SPRING (GEAR), COMPRESSION	
229	3-701-446-21	WASHER	
230	4-211-218-01	GEAR (GEAR A)	
231	4-211-220-01	GEAR (U/D SLIDER)	
232	4-211-219-01	GEAR (GEAR B)	
233	4-222-784-01	SPRING (INSULATOR),COMPRESSION	
234	4-222-785-01	SPRING (INSULATOR),COMPRESSION	
235	4-218-253-21	SCREW (M2.6), +BTTP	
236	4-211-234-01	BRACKET (STOCKER T)	
237	4-228-772-02	PLATE,SHIELD	
M701	X-4950-341-1	MOTOR (CLAMP) ASSY	
S707	1-418-045-11	ENCODER, ROTARY (DISC TRAY ADDRESS DET.)	

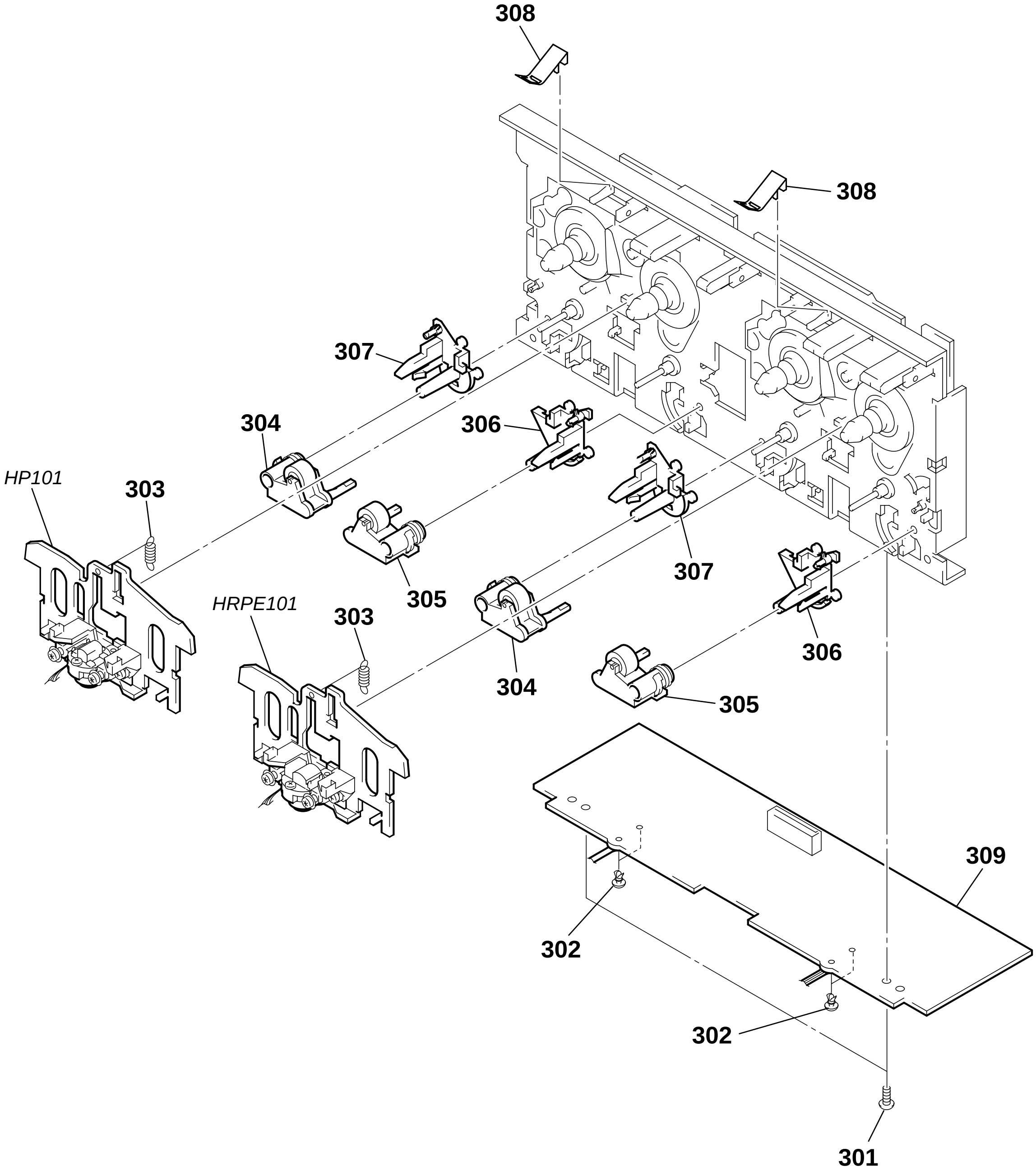
8-6. BASE UNIT SECTION (BU-K4BD40)



The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

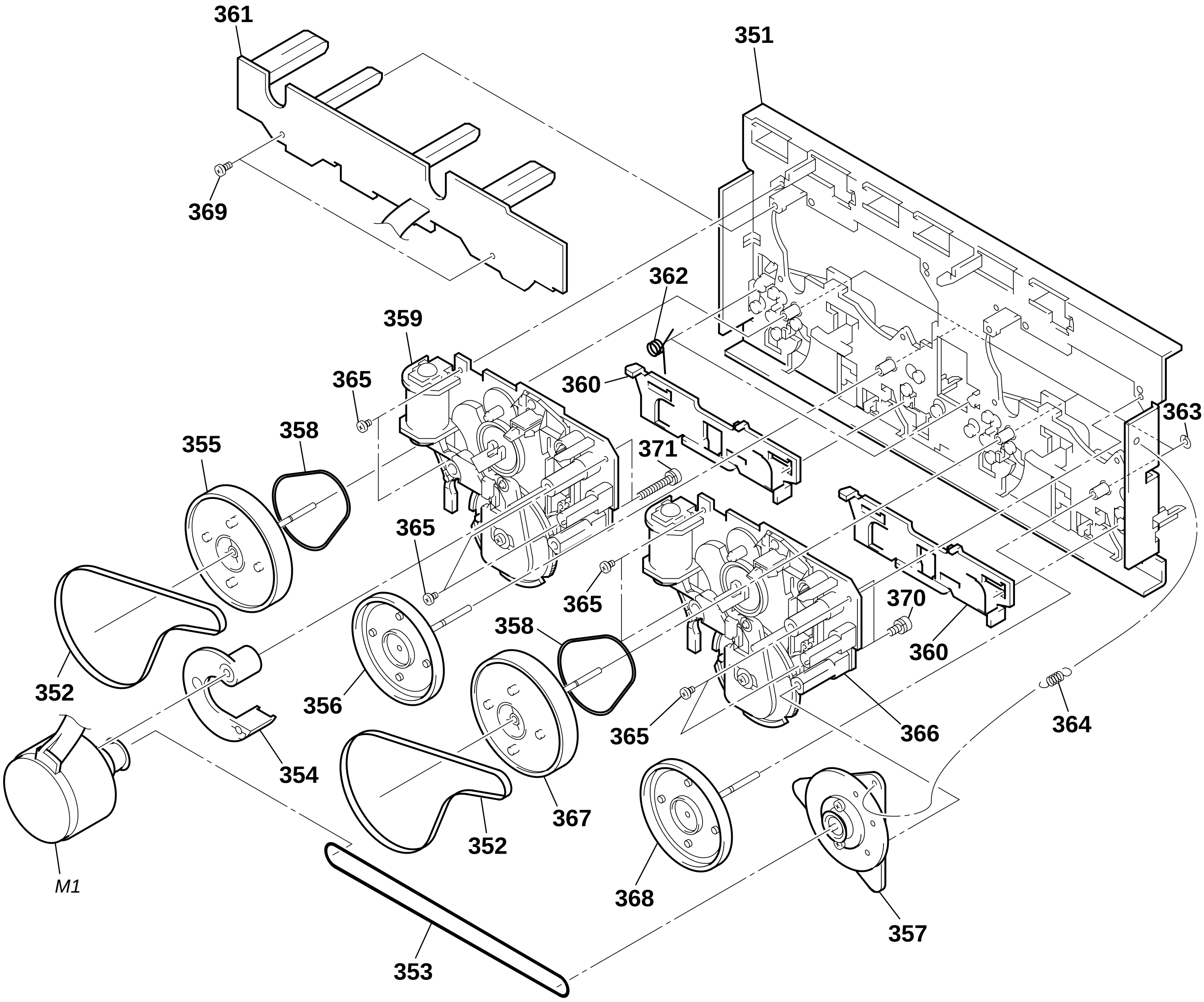
Ref. No.	Part No.	Description	Remarks
⚠251	8-820-122-01	OPTICAL PICK-UP KSM-213DHAP/Z-NP	
252	1-769-069-11	WIRE (FLAT TYPE) (16 CORE)	
253	A-4725-108-A	BD (CD) BOARD, COMPLETE	
254	4-951-620-01	SCREW (2.6X8), +BVTP	

8-7. TAPE MECHANISM DECK SECTION-1 (TCM-230AWR12)



Ref. No.	Part No.	Description	Remarks
301	3-376-464-11	SCREW(+PTT 2.6X6),GROUND POINT	
302	3-911-116-42	RIVET, PUSH	
303	3-016-574-01	SPRING (HEAD), TENSION	
304	X-3374-156-4	PINCH LEVER (REV) ASSY	
305	X-3374-155-4	PINCH LEVER (FWD) ASSY	
306	3-017-365-01	BASE (PINCH LEVER FWD)	
307	3-017-366-01	BASE (PINCH LEVER REV)	
308	3-016-567-02	SPRING (CASSETTE), LEAF	
309	A-2007-845-A	AUDIO BOARD, COMPLETE	
HP101	A-2004-778-A	BASE (A) ASSY, HEAD	
HRPE101	A-2004-779-A	BASE (B) ASSY, HEAD	

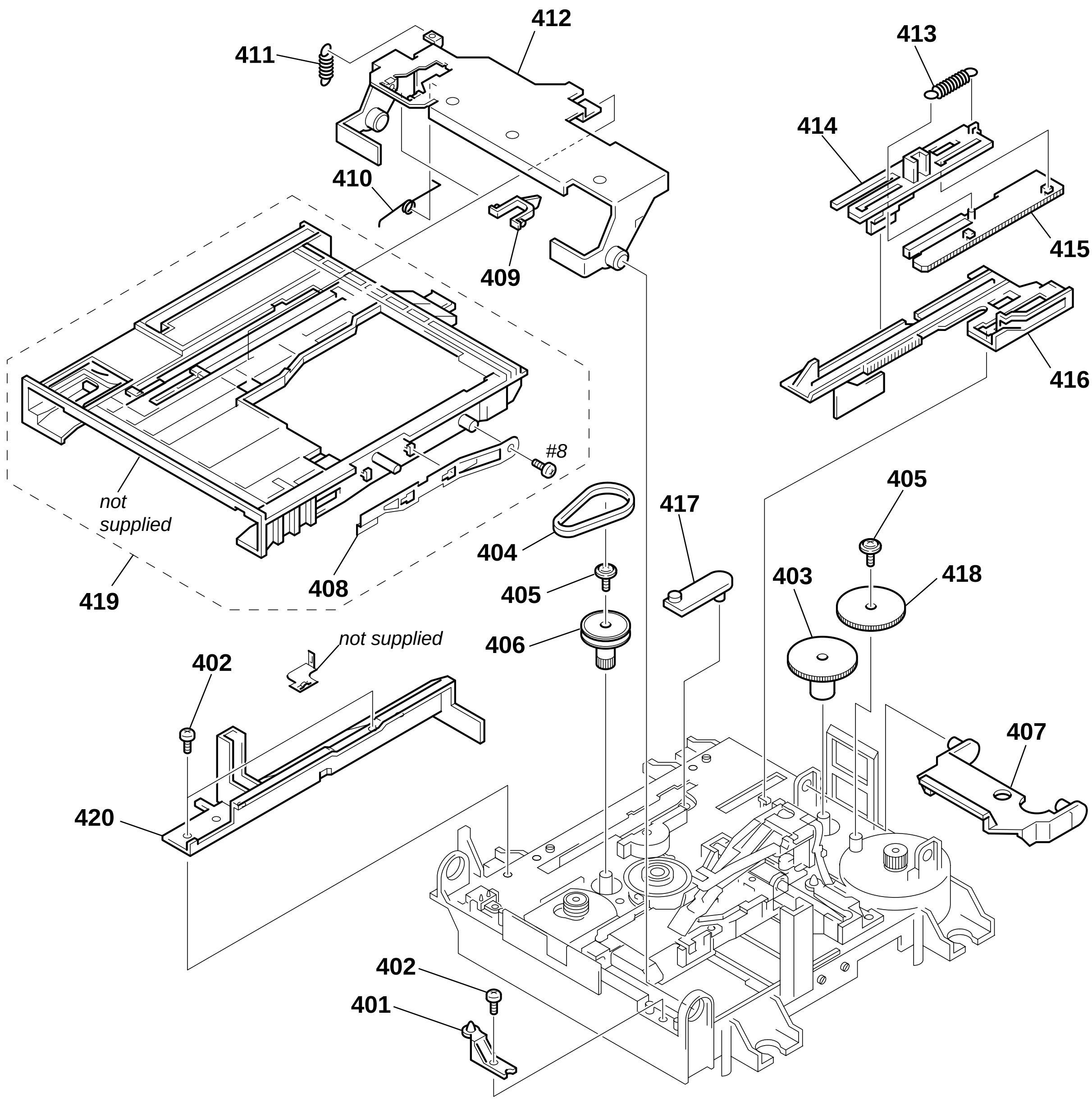
8-8. TAPE MECHANISM DECK SECTION-2 (TCM-230AWR12)



Ref. No.	Part No.	Description	Remarks
351	X-4952-881-1	CHASSIS ASSY, MAIN	
352	3-041-946-01	BELT (CAPSTAN B)	
353	4-227-239-01	BELT (CAPSTAN C)	
354	3-016-568-01	BRACKET (MOTOR)	
355	X-3378-040-1	FLYWHEEL (A-FWD) ASSY	
356	X-3378-041-1	FLYWHEEL (A-REV) ASSY	
357	X-3374-157-1	PULLEY ASSY, TENSION	
358	3-041-947-01	BELT (FR)	
359	A-2004-752-A	BLOCK (A) ASSY, MECHANICAL	
360	3-016-566-01	SLIDER, REVERSE	
361	A-2007-838-A	LEAF SW BOARD, COMPLETE	

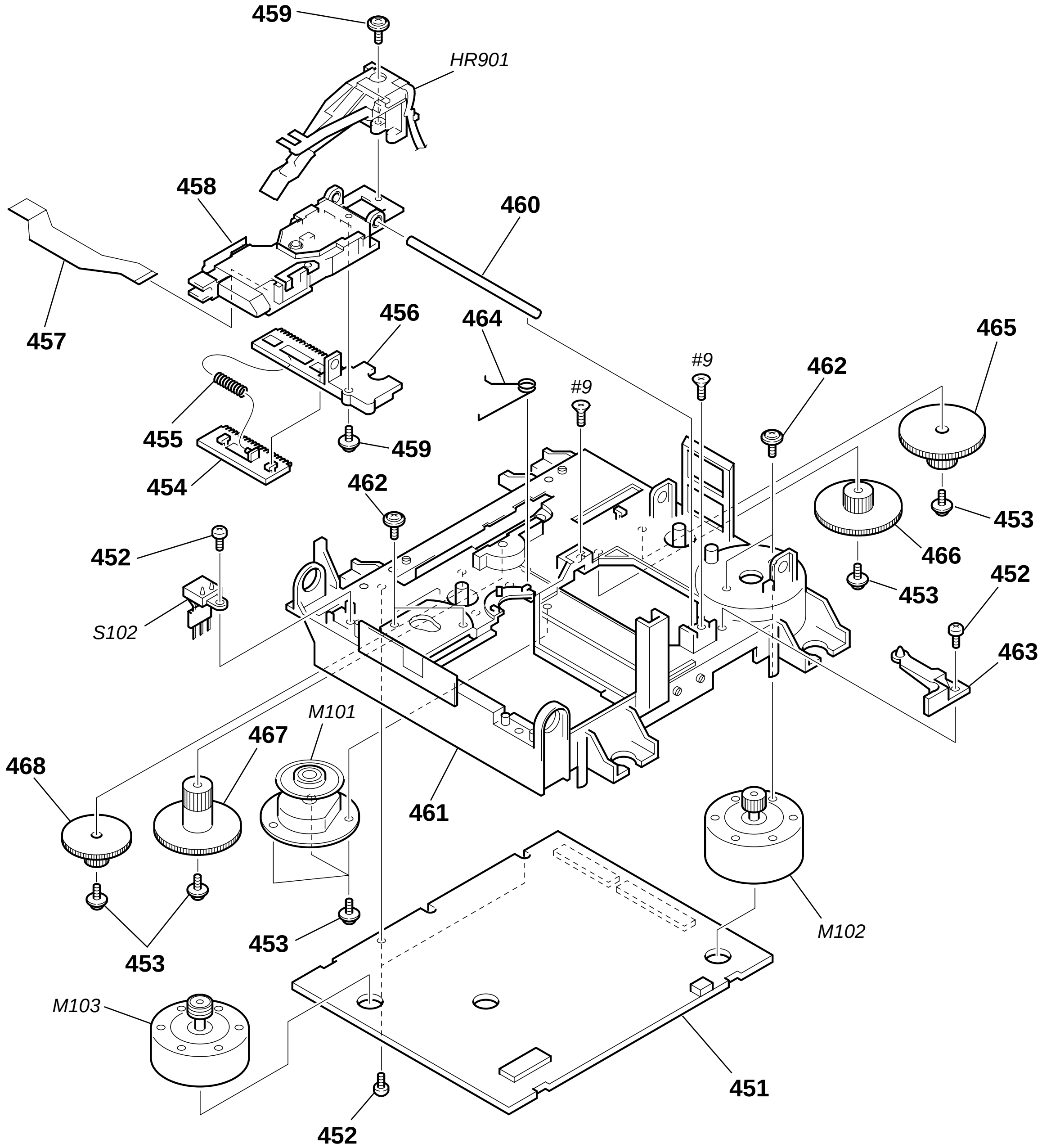
Ref. No.	Part No.	Description	Remarks
362	4-228-450-01	SPRING (REVERSE SLIDER),TORSION	
363	3-019-208-01	WASHER, STOPPER	
364	3-027-453-01	SPRING (GROUND), TENSION	
365	3-030-823-01	SCREW (+BVTT) (2X3.5)	
366	A-2004-753-A	BLOCK (B) ASSY, MECHANICAL	
367	X-3378-042-1	FLYWHEEL (B-FWD) ASSY	
368	X-3378-043-1	FLYWHEEL (B-REV) ASSY	
369	7-685-851-04	SCREW +BVTT 2X4 (S)	
370	7-628-254-15	SCREW +PS 2.6X6	
371	7-628-254-50	SCREW +PS 2.6X16	
M1	X-3378-241-1	MOTOR ASSY	

8-9. MD MECHANISM SECTION-1
(MDM-7B)



Ref. No.	Part No.	Description	Remarks
* 401	4-996-267-01	BASE (BU-D)	
402	4-908-618-21	SCREW (+BTP) (2X6)	
403	4-227-007-01	GEAR (SB)	
404	4-227-025-01	BELT (LOADING)	
405	3-372-761-01	SCREW (M1.7), TAPPING	
406	4-227-002-01	GEAR, PULLEY	
407	4-226-999-01	LEVER (HEAD)	
408	X-4952-665-1	SPRING (SHT) ASSY, LEAF	
409	4-228-923-01	LOCK (HOLDER)	
410	4-229-533-02	SPRING (STOPPER), TORSION	
411	4-227-012-01	SPRING (HOLDER), TENSION	
412	4-227-019-02	PLATE (HOLDER), RETAINER	
413	4-227-013-01	SPRING (EJ), TENSION	
414	4-226-995-01	SLIDER (EJ)	
415	4-226-996-01	LIMITTER (EJ)	
416	4-226-997-01	SLIDER	
417	4-226-998-01	LEVER (CHG)	
418	4-227-006-01	GEAR (SA)	
419	A-4673-973-A	HOLDER ASSY	
420	4-226-994-01	GUIDE (L)	

8-10. MD MECHANISM SECTION-2
(MDM-7B)



The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

Ref. No.	Part No.	Description	Remarks
451	A-4725-101-A	BD (MD) BOARD	
452	4-908-618-21	SCREW (+BTP) (2X6)	
453	3-372-761-01	SCREW (M1.7), TAPPING	
454	4-226-993-01	RACK	
455	4-227-014-01	SPRING (RACK), COMPRESSION	
456	4-226-992-01	BASE, SL	
457	1-678-514-11	FLEXIBLE BOARD	
⚠458	A-4672-541-A	OPTICAL PICK-UP KMS-260B/J1N	
459	4-988-560-01	SCREW (+P 1.7X6)	
460	4-996-265-01	SHAFT, MAIN	
461	4-226-989-01	CHASSIS	
462	4-211-036-01	SCREW (1.7X2.5), +PWH	

Ref. No.	Part No.	Description	Remarks
463	4-226-990-01	BASE (BU-A)	
464	4-227-023-01	SPRING (SPINDLE), TORSION	
465	4-227-004-01	GEAR (LC)	
466	4-227-005-01	GEAR (LD)	
467	4-227-009-01	GEAR (SD)	
468	4-227-008-01	GEAR (SC)	
HR901	1-500-670-11	HEAD, OVER LIGHT	
M101	A-4672-898-A	MOTOR ASSY, SPINDLE	
M102	A-4672-900-A	MOTOR ASSY, SLED	
M103	A-4672-975-A	MOTOR ASSY, LOADING	
S102	1-771-957-11	SWITCH, PUSH (2KEY) (REFLECT/PROTECT SW)	

MEMO

SECTION 9
ELECTRICAL PARTS LIST

AUDIO

NOTE:
- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX, -X mean standardized parts, so they may have some difference from the original one.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- CAPACITORS:
  uF: μF
- RESISTORS
  All resistors are in ohms.
  METAL: metal-film resistor
  METAL OXIDE: Metal Oxide-film resistor
  F: nonflammable
- COILS
  uH: μH
- SEMICONDUCTORS
  In each case, u: μ, for example:
  uA...: μA... , uPA... , μPA... ,
  uPB... , μPB... , uPC... , μPC... ,
  uPD..., μPD...
- Abbreviation
  G : German model
  AED : North European model
  MX : Mexican model
  AR : Argentine model
  HK : Hong Kong model
  MY : Malaysia model
  SP : Singapore model
  KR : Korea model
  AUS : Australian model

When indicating parts by reference number, please include the board name.

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

Ref. No.	Part No.	Description				Remarks
	A-2007-845-A	AUDIO BOARD, COMPLETE				
		**********************				
		< CAPACITOR >				
C301	1-162-289-31	CERAMIC	390PF	10%	50V	
C302	1-126-968-11	ELECT	100uF	20%	6.3V	
C303	1-162-282-31	CERAMIC	100PF	10%	50V	
C304	1-130-483-00	MYLAR	0.01uF	5%	50V	
C305	1-107-715-11	ELECT	22uF	20%	16V	
C311	1-162-289-31	CERAMIC	390PF	10%	50V	
C313	1-162-282-31	CERAMIC	100PF	10%	50V	
C314	1-130-487-00	MYLAR	0.022uF	5%	50V	
C315	1-126-233-11	ELECT	22uF	20%	50V	
C331	1-137-427-11	MYLAR	120PF	5%	50V	
C332	1-162-288-31	CERAMIC	330PF	10%	50V	
C333	1-162-209-31	CERAMIC	27PF	5%	50V	
C401	1-162-289-31	CERAMIC	390PF	10%	50V	
C402	1-126-968-11	ELECT	100uF	20%	6.3V	
C403	1-162-282-31	CERAMIC	100PF	10%	50V	
C404	1-130-483-00	MYLAR	0.01uF	5%	50V	
C405	1-107-715-11	ELECT	22uF	20%	16V	
C411	1-162-289-31	CERAMIC	390PF	10%	50V	
C413	1-162-282-31	CERAMIC	100PF	10%	50V	
C414	1-130-487-00	MYLAR	0.022uF	5%	50V	
C415	1-126-233-11	ELECT	22uF	20%	50V	
C431	1-137-427-11	MYLAR	120PF	5%	50V	
C432	1-162-288-31	CERAMIC	330PF	10%	50V	
C433	1-162-209-31	CERAMIC	27PF	5%	50V	
C601	1-104-396-11	ELECT	10uF	20%	16V	
C602	1-104-396-11	ELECT	10uF	20%	16V	
C611	1-104-396-11	ELECT	10uF	20%	16V	
C612	1-104-396-11	ELECT	10uF	20%	16V	
C621	1-137-150-11	FILM	0.01uF	5%	100V	
C622	1-126-961-11	ELECT	2.2uF	20%	50V	
C623	1-136-155-00	FILM	0.015uF	5%	50V	
C624	1-130-481-00	MYLAR	0.0068uF	5%	50V	
C625	1-130-481-00	MYLAR	0.0068uF	5%	50V	
C627	1-124-903-11	ELECT	1uF	20%	50V	
C628	1-136-153-00	FILM	0.01uF	5%	50V	
C642	1-104-664-11	ELECT	47uF	20%	16V	
		< CONNECTOR >				
CN601	1-695-338-11	PIN, CONNECTOR (PC BOARD) 15P				
		< IC >				
IC601	8-759-111-44	IC uPC4570C-1				
IC602	8-759-143-54	IC uPC1330HA				
IC611	8-759-111-44	IC uPC4570C-1				
		< COIL >				
L331	1-410-780-11	INDUCTOR	27mH			
L431	1-410-780-11	INDUCTOR	27mH			
		< TRANSISTOR >				
Q621	8-729-142-46	TRANSISTOR 2SC2001TP-LK				
Q622	8-729-142-46	TRANSISTOR 2SC2001TP-LK				
Q623	8-729-801-93	TRANSISTOR 2SD1387-34-TP				
		< RESISTOR >				
R301	1-247-881-00	CARBON	120K	5%	1/4W	
R302	1-249-409-11	CARBON	220	5%	1/4W	F
R303	1-249-433-11	CARBON	22K	5%	1/4W	
R304	1-247-889-00	CARBON	270K	5%	1/4W	
R305	1-247-858-11	CARBON	13K	5%	1/4W	
R311	1-247-881-00	CARBON	120K	5%	1/4W	
R312	1-247-807-31	CARBON	100	5%	1/4W	
R314	1-247-882-11	CARBON	130K	5%	1/4W	
R315	1-247-850-11	CARBON	6.2K	5%	1/4W	
R331	1-249-430-11	CARBON	12K	5%	1/4W	
R401	1-247-881-00	CARBON	120K	5%	1/4W	
R402	1-249-409-11	CARBON	220	5%	1/4W	F
R403	1-249-433-11	CARBON	22K	5%	1/4W	
R404	1-247-889-00	CARBON	270K	5%	1/4W	
R405	1-247-858-11	CARBON	13K	5%	1/4W	
R411	1-247-881-00	CARBON	120K	5%	1/4W	
R412	1-247-807-31	CARBON	100	5%	1/4W	
R414	1-247-882-11	CARBON	130K	5%	1/4W	
R415	1-247-850-11	CARBON	6.2K	5%	1/4W	
R431	1-249-430-11	CARBON	12K	5%	1/4W	
R601	1-249-409-11	CARBON	220	5%	1/4W	F
R602	1-249-409-11	CARBON	220	5%	1/4W	F
R608	1-249-409-11	CARBON	220	5%	1/4W	F
R609	1-249-433-11	CARBON	22K	5%	1/4W	
R611	1-249-409-11	CARBON	220	5%	1/4W	F
R612	1-249-409-11	CARBON	220	5%	1/4W	F
⚠R621	1-212-851-00	FUSIBLE	5.6	5%	1/4W	
⚠R622	1-212-851-00	FUSIBLE	5.6	5%	1/4W	

Ref. No.	Part No.	Description			Remarks
R623	1-249-432-11	CARBON	18K	5%	1/4W
R624	1-249-432-11	CARBON	18K	5%	1/4W
R625	1-249-429-11	CARBON	10K	5%	1/4W
		< VARIABLE RESISTOR >			
RV301	1-238-598-11	RES, ADJ, CARBON 2.2K			
RV311	1-238-598-11	RES, ADJ, CARBON 2.2K			
RV341	1-241-768-11	RES, ADJ, CARBON 220K			
RV401	1-238-598-11	RES, ADJ, CARBON 2.2K			
RV411	1-238-598-11	RES, ADJ, CARBON 2.2K			
RV441	1-241-768-11	RES, ADJ, CARBON 220K			
		< TRANSFORMER >			
T621	1-423-980-11	TRANSFORMER, BIAS OSCILLATION			

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Ref. No.	Part No.	Description			Remarks
	A-4725-108-A	BD (CD) BOARD, COMPLETE			
		************************			
		< CAPACITOR >			
C101	1-162-962-11	CERAMIC CHIP	470PF	10%	50V
C102	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C103	1-162-962-11	CERAMIC CHIP	470PF	10%	50V
C105	1-126-206-11	ELECT CHIP	100uF	20%	6.3V
C106	1-115-156-11	CERAMIC CHIP	1uF		10V
C107	1-115-156-11	CERAMIC CHIP	1uF		10V
C108	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C109	1-162-965-11	CERAMIC CHIP	0.0015uF	10%	50V
C110	1-162-968-11	CERAMIC CHIP	0.0047uF	10%	50V
C111	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C112	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C113	1-115-156-11	CERAMIC CHIP	1uF		10V
C115	1-126-607-11	ELECT CHIP	47uF	20%	4V
C116	1-126-607-11	ELECT CHIP	47uF	20%	4V
C117	1-126-209-11	ELECT CHIP	100uF	20%	4V
C118	1-115-416-11	CERAMIC CHIP	1000PF	5%	25V
C119	1-162-915-11	CERAMIC CHIP	10PF	0.5PF	50V
C120	1-115-156-11	CERAMIC CHIP	1uF		10V
C122	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C123	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C124	1-162-968-11	CERAMIC CHIP	0.0047uF	10%	50V
C126	1-124-779-00	ELECT CHIP	10uF	20%	16V
C127	1-126-601-11	ELECT CHIP	2.2uF	20%	50V
C130	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C140	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C141	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C152	1-162-920-11	CERAMIC CHIP	27PF	5%	50V
C154	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C159	1-162-968-11	CERAMIC CHIP	0.0047uF	10%	50V
C161	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C162	1-126-204-11	ELECT CHIP	47uF	20%	16V
C163	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C167	1-162-915-11	CERAMIC CHIP	10PF	0.5PF	50V
C168	1-162-915-11	CERAMIC CHIP	10PF	0.5PF	50V
C171	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C180	1-115-412-11	CERAMIC CHIP	680PF	5%	25V
C181	1-115-412-11	CERAMIC CHIP	680PF	5%	25V
C182	1-115-412-11	CERAMIC CHIP	680PF	5%	25V
C183	1-115-412-11	CERAMIC CHIP	680PF	5%	25V
C184	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V

Ref. No.	Part No.	Description			Remarks
C185	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C186	1-128-065-11	ELECT CHIP	68uF	20%	10V
C187	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C190	1-115-156-11	CERAMIC CHIP	1uF		10V
C191	1-164-360-11	CERAMIC CHIP	0.1uF		16V
		< CONNECTOR >			
CN101	1-778-874-11	CONNECTOR,FFC (LIF(NON-ZIF))19P			
CN102	1-777-937-11	CONNECTOR, FFC/FPC 16P			
		< IC >			
IC101	8-752-397-42	IC CXD3008Q			
IC102	8-759-640-22	IC BA5982FM			
IC103	8-752-085-51	IC CXA2568M-T6			
		< COIL >			
L101	1-414-445-11	FERRITE	0uH		
L102	1-410-377-31	INDUCTOR CHIP	4.7uH		
L103	1-216-864-11	METAL CHIP	0	5%	1/16W
		< TRANSISTOR >			
Q101	8-729-049-31	TRANSISTOR 2SB710-RTX			
Q102	8-729-120-28	TRANSISTOR 2SC1623-T1-L5L6			
		< RESISTOR >			
R101	1-216-835-11	METAL CHIP	15K	5%	1/16W
R102	1-216-845-11	METAL CHIP	100K	5%	1/16W
R103	1-216-835-11	METAL CHIP	15K	5%	1/16W
R104	1-216-839-11	METAL CHIP	33K	5%	1/16W
R105	1-216-833-91	RES-CHIP	10K	5%	1/16W
R106	1-216-821-11	METAL CHIP	1K	5%	1/16W
R107	1-216-833-91	RES-CHIP	10K	5%	1/16W
R108	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
R109	1-216-857-11	METAL CHIP	1M	5%	1/16W
R110	1-216-809-11	METAL CHIP	100	5%	1/16W
R112	1-216-809-11	METAL CHIP	100	5%	1/16W
R118	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R119	1-216-813-11	METAL CHIP	220	5%	1/16W
R121	1-216-841-11	METAL CHIP	47K	5%	1/16W
R123	1-216-833-91	RES-CHIP	10K	5%	1/16W
R124	1-216-845-11	METAL CHIP	100K	5%	1/16W
R131	1-216-813-11	METAL CHIP	220	5%	1/16W
R137	1-216-864-11	METAL CHIP	0	5%	1/16W
R143	1-216-848-11	METAL CHIP	180K	5%	1/16W
R144	1-216-848-11	METAL CHIP	180K	5%	1/16W
R145	1-216-857-11	METAL CHIP	1M	5%	1/16W
R146	1-216-857-11	METAL CHIP	1M	5%	1/16W
R147	1-216-817-11	METAL CHIP	470	5%	1/16W
R148	1-216-797-11	METAL CHIP	10	5%	1/16W
R149	1-216-798-11	RES-CHIP	12	5%	1/16W
R150	1-216-833-91	RES-CHIP	10K	5%	1/16W
R152	1-216-833-91	RES-CHIP	10K	5%	1/16W
R154	1-216-809-11	METAL CHIP	100	5%	1/16W
R155	1-216-809-11	METAL CHIP	100	5%	1/16W
R156	1-216-809-11	METAL CHIP	100	5%	1/16W
R157	1-216-809-11	METAL CHIP	100	5%	1/16W
R158	1-216-833-91	RES-CHIP	10K	5%	1/16W
R159	1-216-841-11	METAL CHIP	47K	5%	1/16W
R162	1-216-847-11	METAL CHIP	150K	5%	1/16W
R172	1-216-809-11	METAL CHIP	100	5%	1/16W

Ref. No.	Part No.	Description			Remarks
R173	1-216-809-11	METAL CHIP	100	5%	1/16W
R174	1-216-809-11	METAL CHIP	100	5%	1/16W
R180	1-216-845-11	METAL CHIP	100K	5%	1/16W
R181	1-218-332-11	RES-CHIP	130K	5%	1/16W
R182	1-216-837-11	METAL CHIP	22K	5%	1/16W
R183	1-216-837-11	METAL CHIP	22K	5%	1/16W
R184	1-218-344-11	RES-CHIP	7.5K	5%	1/16W
R185	1-218-344-11	RES-CHIP	7.5K	5%	1/16W
R186	1-216-837-11	METAL CHIP	22K	5%	1/16W
R187	1-216-837-11	METAL CHIP	22K	5%	1/16W
R188	1-218-344-11	RES-CHIP	7.5K	5%	1/16W
R189	1-218-344-11	RES-CHIP	7.5K	5%	1/16W
R190	1-216-837-11	METAL CHIP	22K	5%	1/16W
R191	1-216-837-11	METAL CHIP	22K	5%	1/16W
R192	1-218-344-11	RES-CHIP	7.5K	5%	1/16W
R193	1-218-344-11	RES-CHIP	7.5K	5%	1/16W
		< SWITCH >			
S101	1-771-853-11	SWITCH, DETECTION (LIMIT SW)			
		< VIBRATOR >			
X101	1-767-518-11	VIBRATOR, CRYSTAL (33.8688MHz)			

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Ref. No.	Part No.	Description			Remarks
	A-4725-101-A	BD (MD) BOARD, COMPLETE			
		*************************			
		< CAPACITOR >			
C101	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C102	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C103	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C104	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C105	1-115-416-11	CERAMIC CHIP	1000PF	5%	25V
C106	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C107	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C108	1-162-969-11	CERAMIC CHIP	0.0068uF	10%	25V
C109	1-164-677-11	CERAMIC CHIP	0.033uF	10%	16V
C110	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C111	1-117-720-11	CERAMIC CHIP	4.7uF		10V
C112	1-110-563-11	CERAMIC CHIP	0.068uF	10%	16V
C113	1-162-968-11	CERAMIC CHIP	0.0047uF	10%	50V
C114	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
C115	1-162-966-11	CERAMIC CHIP	0.0022uF	10%	50V
C116	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C117	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C118	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V
C119	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V
C120	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C121	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C125	1-117-720-11	CERAMIC CHIP	4.7uF		10V
C128	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C131	1-117-720-11	CERAMIC CHIP	4.7uF		10V
C132	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C133	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C141	1-126-206-11	ELECT CHIP	100uF	20%	6.3V
C142	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C143	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C144	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C145	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C146	1-117-720-11	CERAMIC CHIP	4.7uF		10V
C147	1-117-720-11	CERAMIC CHIP	4.7uF		10V
C151	1-117-370-11	CERAMIC CHIP	10uF		10V
C152	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C153	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C154	1-126-206-11	ELECT CHIP	100uF	20%	6.3V
C155	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C156	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C157	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C158	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C159	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C160	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C161	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C162	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C163	1-125-891-11	CERAMIC CHIP	0.47uF	10%	10V
C164	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C165	1-162-968-11	CERAMIC CHIP	0.0047uF	10%	50V
C166	1-125-891-11	CERAMIC CHIP	0.47uF	10%	10V
C167	1-164-245-11	CERAMIC CHIP	0.015uF	10%	25V
C169	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C173	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C174	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C180	1-117-370-11	CERAMIC CHIP	10uF		10V
C181	1-126-206-11	ELECT CHIP	100uF	20%	6.3V
C182	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C183	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C184	1-117-970-11	ELECT CHIP	22uF	20%	10V
C185	1-131-872-91	CERAMIC CHIP	1000PF	10%	630V
C191	1-126-206-11	ELECT CHIP	100uF	20%	6.3V
C192	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C193	1-126-206-11	ELECT CHIP	100uF	20%	6.3V
C194	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C195	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C196	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C1401	1-117-720-11	CERAMIC CHIP	4.7uF		10V
		< CONNECTOR >			
CN101	1-766-833-21	CONNECTOR, FFC/FPC (ZIF) 21P			
CN102	1-784-835-21	CONNECTOR,FFC (LIF(NON-ZIF))27P			
CN103	1-784-869-21	CONNECTOR,FFC (LIF(NON-ZIF))17P			
* CN104	1-580-055-21	PIN, CONNECTOR (SMD) 2P			
CN105	1-784-859-21	CONNECTOR, FFC (LIF(NON-ZIF))7P			
		< DIODE >			
D101	8-719-988-61	DIODE 1SS355TE-17			
D181	8-719-080-81	DIODE FS1J6			
D183	8-719-080-81	DIODE FS1J6			
		< IC >			
IC101	8-752-080-95	IC CXA2523AR			
IC102	8-759-473-51	IC TLV2361CDBV			
IC141	8-759-430-25	IC BH6511FS-E2			
IC151	8-752-404-64	IC CXD2662R			
IC152	8-759-599-51	IC MSM51V17400D-50TS-K			
IC181	8-759-481-17	IC MC74ACT08DTR2			
IC190	8-759-677-64	IC L88M35T			
IC195	8-759-640-41	IC BR24C08F-E2			

BD (MD)

Ref. No.	Part No.	Description			Remarks
		< JUMPER RESISTOR >			
JW201	1-216-295-91	SHORT	0		
JW202	1-216-295-91	SHORT	0		
JW203	1-216-295-91	SHORT	0		
JW903	1-216-295-91	SHORT	0		
JW904	1-216-295-91	SHORT	0		
		< COIL >			
L101	1-500-245-11	INDUCTOR CHIP	0uH		
L102	1-500-245-11	INDUCTOR CHIP	0uH		
L103	1-500-245-11	INDUCTOR CHIP	0uH		
L105	1-414-235-22	INDUCTOR CHIP	0uH		
L106	1-500-245-11	INDUCTOR CHIP	0uH		
L121	1-500-245-11	INDUCTOR CHIP	0uH		
L122	1-500-245-11	INDUCTOR CHIP	0uH		
L131	1-500-245-11	INDUCTOR CHIP	0uH		
L141	1-412-029-11	INDUCTOR CHIP	10uH		
L142	1-412-032-11	INDUCTOR CHIP	100uH		
L143	1-412-029-11	INDUCTOR CHIP	10uH		
L144	1-412-032-11	INDUCTOR CHIP	100uH		
L145	1-412-032-11	INDUCTOR CHIP	100uH		
L146	1-469-855-21	FERRITE	0uH		
L147	1-469-855-21	FERRITE	0uH		
L161	1-500-245-11	INDUCTOR CHIP	0uH		
L171	1-500-245-11	INDUCTOR CHIP	0uH		
L180	1-469-855-21	FERRITE	0uH		
L181	1-469-855-21	FERRITE	0uH		
L182	1-500-245-11	INDUCTOR CHIP	0uH		
L183	1-216-296-91	SHORT	0		
L184	1-216-296-91	SHORT	0		
		< TRANSISTOR >			
Q101	8-729-403-35	TRANSISTOR UN5113-TX			
Q121	8-729-403-35	TRANSISTOR UN5113-TX			
Q122	8-729-101-07	TRANSISTOR 2SB798-T1DK			
Q131	8-729-026-53	TRANSISTOR 2SA1576A-T106-QR			
Q132	8-729-903-10	TRANSISTOR FMW1-T-148			
Q133	8-729-402-93	TRANSISTOR UN5214-TX			
Q134	8-729-402-93	TRANSISTOR UN5214-TX			
Q181	8-729-018-75	TRANSISTOR 2SJ278MYTR			
Q182	8-729-017-65	TRANSISTOR 2SK1764KYTR			
		< RESISTOR >			
R101	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R102	1-216-853-11	METAL CHIP	470K	5%	1/16W
R103	1-216-863-11	RES-CHIP	3.3M	5%	1/16W
R104	1-216-853-11	METAL CHIP	470K	5%	1/16W
R105	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R106	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R107	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R108	1-216-833-91	RES-CHIP	10K	5%	1/16W
R109	1-216-845-11	METAL CHIP	100K	5%	1/16W
R110	1-216-845-11	METAL CHIP	100K	5%	1/16W
R111	1-216-833-91	RES-CHIP	10K	5%	1/16W
R112	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R113	1-216-833-91	RES-CHIP	10K	5%	1/16W
R114	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
R115	1-216-833-91	RES-CHIP	10K	5%	1/16W

Ref. No.	Part No.	Description			Remarks
R116	1-216-839-11	METAL CHIP	33K	5%	1/16W
R117	1-216-837-11	METAL CHIP	22K	5%	1/16W
R118	1-218-855-11	METAL CHIP	2.2K	0.5%	1/16W
R119	1-218-863-11	METAL CHIP	4.7K	0.5%	1/16W
R120	1-218-889-11	METAL CHIP	56K	0.5%	1/16W
R121	1-218-863-11	METAL CHIP	4.7K	0.5%	1/16W
R122	1-218-855-11	METAL CHIP	2.2K	0.5%	1/16W
R123	1-216-819-11	METAL CHIP	680	5%	1/16W
R124	1-216-809-11	METAL CHIP	100	5%	1/16W
R125	1-216-815-11	METAL CHIP	330	5%	1/16W
R126	1-216-819-11	METAL CHIP	680	5%	1/16W
R127	1-216-845-11	METAL CHIP	100K	5%	1/16W
R128	1-219-724-11	METAL CHIP	1	1%	1/4W
R129	1-216-298-00	METAL CHIP	2.2	5%	1/10W
R130	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R131	1-216-833-91	RES-CHIP	10K	5%	1/16W
R132	1-216-839-11	METAL CHIP	33K	5%	1/16W
R133	1-216-821-11	METAL CHIP	1K	5%	1/16W
R134	1-216-821-11	METAL CHIP	1K	5%	1/16W
R135	1-216-821-11	METAL CHIP	1K	5%	1/16W
R136	1-216-302-00	METAL CHIP	2.7	5%	1/10W
R138	1-216-833-91	RES-CHIP	10K	5%	1/16W
R150	1-216-833-91	RES-CHIP	10K	5%	1/16W
R151	1-216-833-91	RES-CHIP	10K	5%	1/16W
R153	1-216-833-91	RES-CHIP	10K	5%	1/16W
R155	1-216-864-11	METAL CHIP	0	5%	1/16W
R156	1-216-864-11	METAL CHIP	0	5%	1/16W
R158	1-216-809-11	METAL CHIP	100	5%	1/16W
R162	1-216-833-91	RES-CHIP	10K	5%	1/16W
R167	1-216-833-91	RES-CHIP	10K	5%	1/16W
R168	1-216-845-11	METAL CHIP	100K	5%	1/16W
R169	1-216-855-11	METAL CHIP	680K	5%	1/16W
R170	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
R171	1-216-821-11	METAL CHIP	1K	5%	1/16W
R173	1-216-821-11	METAL CHIP	1K	5%	1/16W
R174	1-216-811-11	METAL CHIP	150	5%	1/16W
R177	1-216-805-11	METAL CHIP	47	5%	1/16W
R179	1-216-295-91	SHORT	0		
R181	1-216-841-11	METAL CHIP	47K	5%	1/16W
R182	1-216-841-11	METAL CHIP	47K	5%	1/16W
R183	1-216-841-11	METAL CHIP	47K	5%	1/16W
R184	1-220-942-11	METAL CHIP	3.3	1%	1/4W
R185	1-220-942-11	METAL CHIP	3.3	1%	1/4W
R195	1-216-833-91	RES-CHIP	10K	5%	1/16W
R196	1-216-833-91	RES-CHIP	10K	5%	1/16W
R197	1-216-833-91	RES-CHIP	10K	5%	1/16W
R218	1-216-864-11	METAL CHIP	0	5%	1/16W
		< SWITCH >			
S101	1-762-596-21	SWITCH, PUSH (1 KEY) (LIMIT IN SW)			
S103	1-771-956-21	SWITCH, PUSH (1 KEY) (OUT SW)			
S104	1-771-955-21	SWITCH, PUSH (1 KEY) (PLAY SW)			
S105	1-771-955-21	SWITCH, PUSH (1 KEY) (REC SW)			
		< VIBRATOR >			
X171	1-781-569-21	OSCILLATOR, CRYSTAL (90MHz)			

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Ref. No.	Part No.	Description				Remarks
	A-4428-661-A	CD SW BOARD, COMPLETE				
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		< DIODE >				
D661	8-719-058-64	DIODE SEL5823A-TP15 (1)				
D662	8-719-058-64	DIODE SEL5823A-TP15 (2)				
D663	8-719-058-64	DIODE SEL5823A-TP15 (3)				
D664	8-719-058-64	DIODE SEL5823A-TP15 (4)				
D665	8-719-058-64	DIODE SEL5823A-TP15 (5)				
		< RESISTOR >				
R628	1-249-420-11	CARBON	1.8K	5%	1/4W	F
R629	1-249-422-11	CARBON	2.7K	5%	1/4W	F
R630	1-247-843-11	CARBON	3.3K	5%	1/4W	
R631	1-249-425-11	CARBON	4.7K	5%	1/4W	F
R632	1-249-427-11	CARBON	6.8K	5%	1/4W	F
R633	1-249-429-11	CARBON	10K	5%	1/4W	
R634	1-249-431-11	CARBON	15K	5%	1/4W	
R635	1-249-434-11	CARBON	27K	5%	1/4W	
R636	1-249-438-11	CARBON	56K	5%	1/4W	
R661	1-249-409-11	CARBON	220	5%	1/4W	F
R662	1-249-409-11	CARBON	220	5%	1/4W	F
R663	1-249-409-11	CARBON	220	5%	1/4W	F
R664	1-249-409-11	CARBON	220	5%	1/4W	F
R665	1-249-409-11	CARBON	220	5%	1/4W	F
		< SWITCH >				
S627	1-762-875-21	SWITCH, KEYBOARD (⏏ 5)				
S628	1-762-875-21	SWITCH, KEYBOARD (⏏ 4)				
S629	1-762-875-21	SWITCH, KEYBOARD (⏏ 3)				
S630	1-762-875-21	SWITCH, KEYBOARD (⏏ 2)				
S631	1-762-875-21	SWITCH, KEYBOARD (⏏ 1)				
S632	1-762-875-21	SWITCH, KEYBOARD (DISC 5)				
S633	1-762-875-21	SWITCH, KEYBOARD (DISC 4)				
S634	1-762-875-21	SWITCH, KEYBOARD (DISC 3)				
S635	1-762-875-21	SWITCH, KEYBOARD (DISC 2)				
S636	1-762-875-21	SWITCH, KEYBOARD (DISC 1)				

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Ref. No.	Part No.	Description				Remarks
	1-671-507-11	CLAMP MOTOR BOARD				
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		< CAPACITOR >				
C701	1-162-306-11	CERAMIC	0.01uF	30%	16V	
C702	1-126-964-11	ELECT	10uF	20%	50V	
C711	1-162-306-11	CERAMIC	0.01uF	30%	16V	
		< CONNECTOR >				
CN712	1-506-469-11	PIN, CONNECTOR 4P				
		< DIODE >				
D701	8-719-983-66	DIODE MTZJ-T-72-3.6B				
		< IC >				
IC701	8-759-633-65	IC M54641L				
		< RESISTOR >				
R701	1-249-411-11	CARBON	330	5%	1/4W	
R702	1-249-401-11	CARBON	47	5%	1/4W	F

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Ref. No.	Part No.	Description				Remarks
	1-671-506-11	CONNECTOR BOARD				
		*****************				
		< CONNECTOR >				
CN701	1-568-860-11	SOCKET, CONNECTOR 17P				
		< TRANSISTOR >				
Q701	8-729-029-66	TRANSISTOR RT1N141S-TP				
		< RESISTOR >				
R707	1-249-424-11	CARBON	3.9K	5%	1/4W	F
R708	1-249-417-11	CARBON	1K	5%	1/4W	F
R709	1-249-429-11	CARBON	10K	5%	1/4W	

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Ref. No.	Part No.	Description				Remarks
	A-4473-391-A	DIGITAL BOARD, COMPLETE (EXCEPT US)				
		***********************				
	A-4473-874-A	DIGITAL BOARD, COMPLETE (US)				
		***********************				
		< CAPACITOR >				
C1001	1-126-934-11	ELECT	220uF	20%	10V	
C1002	1-163-038-91	CERAMIC CHIP	0.1uF		25V	
C1003	1-126-933-11	ELECT	100uF	20%	16V	
C1004	1-163-038-91	CERAMIC CHIP	0.1uF		25V	
C1005	1-126-933-11	ELECT	100uF	20%	16V	
C1006	1-163-038-91	CERAMIC CHIP	0.1uF		25V	
C1007	1-126-933-11	ELECT	100uF	20%	16V	
C1008	1-163-038-91	CERAMIC CHIP	0.1uF		25V	
C1009	1-163-038-91	CERAMIC CHIP	0.1uF		25V	
C1010	1-126-933-11	ELECT	100uF	20%	16V	
C1011	1-163-038-91	CERAMIC CHIP	0.1uF		25V	
C1012	1-126-933-11	ELECT	100uF	20%	16V	
C1013	1-126-933-11	ELECT	100uF	20%	16V	
C1014	1-163-038-91	CERAMIC CHIP	0.1uF		25V	
C1015	1-126-933-11	ELECT	100uF	20%	16V	
C1016	1-163-038-91	CERAMIC CHIP	0.1uF		25V	
C1017	1-163-038-91	CERAMIC CHIP	0.1uF		25V	
C1018	1-163-038-91	CERAMIC CHIP	0.1uF		25V	
C1019	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V	
C1020	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V	
C1021	1-163-038-91	CERAMIC CHIP	0.1uF		25V	
C1022	1-126-933-11	ELECT	100uF	20%	16V	
C1023	1-163-038-91	CERAMIC CHIP	0.1uF		25V	
C1024	1-163-038-91	CERAMIC CHIP	0.1uF		25V	
C1025	1-163-038-91	CERAMIC CHIP	0.1uF		25V	
C1026	1-126-933-11	ELECT	100uF	20%	16V	
C1027	1-163-031-11	CERAMIC CHIP	0.01uF		50V	
C1031	1-163-038-91	CERAMIC CHIP	0.1uF		25V	
C1034	1-163-031-11	CERAMIC CHIP	0.01uF		50V	
C1035	1-163-038-91	CERAMIC CHIP	0.1uF		25V	
C1037	1-163-117-00	CERAMIC CHIP	100PF	5%	50V	
C1038	1-163-117-00	CERAMIC CHIP	100PF	5%	50V	
C1039	1-163-117-00	CERAMIC CHIP	100PF	5%	50V	
C1040	1-163-117-00	CERAMIC CHIP	100PF	5%	50V	
C1041	1-163-117-00	CERAMIC CHIP	100PF	5%	50V	
C1044	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V	
C1045	1-126-933-11	ELECT	100uF	20%	16V	
C1046	1-136-153-00	FILM	0.01uF	5%	50V	

DIGITAL FRONT AMP

Ref. No.	Part No.	Description			Remarks
C1047	1-136-153-00	FILM	0.01uF	5%	50V
C1048	1-126-933-11	ELECT	100uF	20%	16V
C1049	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C1050	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C1051	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C1052	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
		< CONNECTOR >			
CN1001	1-784-747-11	CONNECTOR, FFC 25P			
CN1003	1-779-295-11	CONNECTOR, FFC (LIF(NON-ZIF))27P			
CN1004	1-779-285-11	CONNECTOR, FFC (LIF(NON-ZIF))17P			
		< IC >			
IC1001	8-759-677-81	IC M30805SGP			
IC1002	8-759-685-90	IC MT28F800B3WG-10T-SYS70			
IC1004	8-759-822-09	IC LB1641			
IC1005	8-759-675-78	IC UDA1360TS			
IC1006	8-759-675-77	IC UDA1350AH			
		< COIL >			
L1001	1-412-533-21	INDUCTOR	47uH		
		< TRANSISTOR >			
Q1001	8-729-421-19	TRANSISTOR UN2213-TW			
Q1002	8-729-602-36	TRANSISTOR 2SA1602TP-1EF			
Q1003	8-729-602-36	TRANSISTOR 2SA1602TP-1EF			
Q1004	8-729-424-18	TRANSISTOR UN2113-TX			
		< RESISTOR >			
R1001	1-216-066-00	METAL CHIP	5.1K	5%	1/10W
R1002	1-216-066-00	METAL CHIP	5.1K	5%	1/10W
R1005	1-216-025-91	RES-CHIP	100	5%	1/10W
R1006	1-216-025-91	RES-CHIP	100	5%	1/10W
R1007	1-216-025-91	RES-CHIP	100	5%	1/10W
R1010	1-216-025-91	RES-CHIP	100	5%	1/10W
R1011	1-216-073-00	METAL CHIP	10K	5%	1/10W
R1012	1-216-073-00	METAL CHIP	10K	5%	1/10W
R1013	1-216-073-00	METAL CHIP	10K	5%	1/10W
R1014	1-216-073-00	METAL CHIP	10K	5%	1/10W
R1015	1-216-073-00	METAL CHIP	10K	5%	1/10W
R1016	1-216-073-00	METAL CHIP	10K	5%	1/10W
R1017	1-216-073-00	METAL CHIP	10K	5%	1/10W
R1018	1-216-073-00	METAL CHIP	10K	5%	1/10W
R1024	1-216-025-91	RES-CHIP	100	5%	1/10W
R1029	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R1030	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R1033	1-216-055-00	METAL CHIP	1.8K	5%	1/10W
R1034	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R1035	1-216-073-00	METAL CHIP	10K	5%	1/10W
R1036	1-216-295-91	SHORT	0		
R1039	1-216-073-00	METAL CHIP	10K	5%	1/10W
R1040	1-216-073-00	METAL CHIP	10K	5%	1/10W
R1041	1-216-073-00	METAL CHIP	10K	5%	1/10W
R1042	1-216-073-00	METAL CHIP	10K	5%	1/10W
R1043	1-216-073-00	METAL CHIP	10K	5%	1/10W
R1044	1-216-073-00	METAL CHIP	10K	5%	1/10W
R1045	1-216-073-00	METAL CHIP	10K	5%	1/10W
R1046	1-216-073-00	METAL CHIP	10K	5%	1/10W
R1047	1-216-073-00	METAL CHIP	10K	5%	1/10W
R1048	1-216-073-00	METAL CHIP	10K	5%	1/10W
R1049	1-216-073-00	METAL CHIP	10K	5%	1/10W
R1050	1-216-073-00	METAL CHIP	10K	5%	1/10W
R1051	1-216-073-00	METAL CHIP	10K	5%	1/10W
R1052	1-216-073-00	METAL CHIP	10K	5%	1/10W
R1053	1-216-073-00	METAL CHIP	10K	5%	1/10W
R1054	1-216-073-00	METAL CHIP	10K	5%	1/10W
R1055	1-216-073-00	METAL CHIP	10K	5%	1/10W
R1056	1-216-073-00	METAL CHIP	10K	5%	1/10W
R1057	1-216-065-91	RES-CHIP	4.7K	5%	1/10W
R1058	1-216-025-91	RES-CHIP	100	5%	1/10W
R1059	1-216-025-91	RES-CHIP	100	5%	1/10W
R1060	1-216-025-91	RES-CHIP	100	5%	1/10W
R1071	1-216-073-00	METAL CHIP	10K	5%	1/10W
R1072	1-216-073-00	METAL CHIP	10K	5%	1/10W
R1073	1-216-073-00	METAL CHIP	10K	5%	1/10W
R1075	1-216-025-91	RES-CHIP	100	5%	1/10W
R1076	1-216-073-00	METAL CHIP	10K	5%	1/10W
R1077	1-216-295-91	SHORT	0		
R1078	1-216-295-91	SHORT	0		
R1079	1-216-295-91	SHORT	0		
R1080	1-216-295-91	SHORT	0		
R1081	1-216-073-00	METAL CHIP	10K	5%	1/10W
R1082	1-216-073-00	METAL CHIP	10K	5%	1/10W
R1083	1-216-073-00	METAL CHIP	10K	5%	1/10W
R1084	1-216-073-00	METAL CHIP	10K	5%	1/10W
R1087	1-216-057-00	RES-CHIP	2.2K	5%	1/10W
R1088	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R1090	1-216-041-00	METAL CHIP	470	5%	1/10W
R1091	1-216-033-00	METAL CHIP	220	5%	1/10W
R1092	1-216-033-00	METAL CHIP	220	5%	1/10W
R1093	1-216-033-00	METAL CHIP	220	5%	1/10W
R1094	1-216-033-00	METAL CHIP	220	5%	1/10W
R1095	1-216-039-00	METAL CHIP	390	5%	1/10W
R2002	1-216-296-91	SHORT	0		
R2003	1-216-296-91	SHORT	0		
		< VIBRATOR >			
X1001	1-579-175-11	VIBRATOR, CERAMIC (10MHz)			

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Ref. No.	Part No.	Description			Remarks
	A-4473-371-A	FRONT AMP BOARD, COMPLETE (US)			
		***************************			
	A-4473-377-A	FRONT AMP BOARD, COMPLETE			(HK,MY,SP,KR,AUS)
		***************************			
	A-4473-386-A	FRONT AMP BOARD, COMPLETE			(AEP,UK,G,AED,CIS)
		***************************			
	A-4473-876-A	FRONT AMP BOARD, COMPLETE (E,MX,AR)			
		***************************			
		< CAPACITOR >			
C801	1-126-963-11	ELECT	4.7uF	20%	50V (EXCEPT US)
C801	1-128-581-11	ELECT	4.7uF	20%	100V (US)
C802	1-162-286-31	CERAMIC	220PF	10%	50V
C803	1-162-282-31	CERAMIC	100PF	10%	50V

Ref. No.	Part No.	Description			Remarks
C804	1-104-664-11	ELECT	47uF	20%	10V
C806	1-136-495-11	FILM	0.068uF	5%	50V
C807	1-136-495-11	FILM	0.068uF	5%	50V
C808	1-136-165-00	FILM	0.1uF	5%	50V
					(AEP,UK,G,AED,CIS)
C809	1-136-165-00	FILM	0.1uF	5%	50V
					(AEP,UK,G,AED,CIS)
C811	1-162-306-11	CERAMIC	0.01uF	30%	16V
C812	1-162-306-11	CERAMIC	0.01uF	30%	16V
C821	1-107-721-11	ELECT	4.7uF	20%	100V
C822	1-107-717-11	ELECT	47uF	20%	50V
C837	1-126-963-11	ELECT	4.7uF	20%	50V
C851	1-126-963-11	ELECT	4.7uF	20%	50V
					(EXCEPT US)
C851	1-128-581-11	ELECT	4.7uF	20%	100V
					(US)
C852	1-162-286-31	CERAMIC	220PF	10%	50V
C853	1-162-282-31	CERAMIC	100PF	10%	50V
C854	1-104-664-11	ELECT	47uF	20%	10V
C856	1-136-495-11	FILM	0.068uF	5%	50V
C857	1-136-495-11	FILM	0.068uF	5%	50V
C858	1-136-165-00	FILM	0.1uF	5%	50V
					(AEP,UK,G,AED,CIS)
C859	1-136-165-00	FILM	0.1uF	5%	50V
					(AEP,UK,G,AED,CIS)
C861	1-162-306-11	CERAMIC	0.01uF	30%	16V
C862	1-162-306-11	CERAMIC	0.01uF	30%	16V
C871	1-107-721-11	ELECT	4.7uF	20%	100V
C872	1-126-959-11	ELECT	0.47uF	20%	50V
C891	1-104-665-11	ELECT	100uF	20%	10V
C892	1-126-961-11	ELECT	2.2uF	20%	50V
C893	1-104-665-11	ELECT	100uF	20%	10V
C911	1-130-777-00	MYLAR	0.1uF	10%	100V
C912	1-130-777-00	MYLAR	0.1uF	10%	100V
C951	1-127-814-11	ELECT	3300uF	20%	80V
					(E,MX,AR)
C951	1-127-754-11	ELECT	3300uF	20%	80V
					(HK,MY,SP,KR,AUS)
C951	1-127-752-11	ELECT	3300uF	20%	63V
					(US,AEP,UK,G,AED,CIS)
C952	1-127-814-11	ELECT	3300uF	20%	80V
					(E,MX,AR)
C952	1-127-754-11	ELECT	3300uF	20%	80V
					(HK,MY,SP,KR,AUS)
C952	1-127-752-11	ELECT	3300uF	20%	63V
					(US,AEP,UK,G,AED,CIS)
C953	1-127-811-11	ELECT	3300uF	20%	50V
					(E,MX,AR)
C953	1-127-751-11	ELECT	3300uF	20%	50V
					(HK,MY,SP,KR,AUS)
C954	1-127-811-11	ELECT	3300uF	20%	50V
					(E,MX,AR)
C954	1-127-751-11	ELECT	3300uF	20%	50V
					(HK,MY,SP,KR,AUS)
C955	1-136-165-00	FILM	0.1uF	5%	50V
					(E,MX,AR,HK,MY,SP,KR,AUS)
C956	1-136-165-00	FILM	0.1uF	5%	50V
					(E,MX,AR,HK,MY,SP,KR,AUS)
C961	1-128-560-11	ELECT	22uF	20%	100V
C962	1-128-560-11	ELECT	22uF	20%	100V
C963	1-126-968-11	ELECT	100uF	20%	50V
C964	1-126-967-11	ELECT	47uF	20%	50V
C981	1-128-564-11	ELECT	220uF	20%	100V

Ref. No.	Part No.	Description			Remarks
C982	1-126-964-11	ELECT	10uF	20%	50V
C983	1-126-967-11	ELECT	47uF	20%	50V
C984	1-164-159-11	CERAMIC	0.1uF		50V
C985	1-104-664-11	ELECT	47uF	20%	16V
					(E,MX,AR,HK,MY,SP,KR,AUS)
C991	1-136-165-00	FILM	0.1uF	5%	50V
C992	1-136-165-00	FILM	0.1uF	5%	50V
C993	1-136-165-00	FILM	0.1uF	5%	50V
C994	1-136-165-00	FILM	0.1uF	5%	50V
		< CONNECTOR >			
CN801	1-691-768-11	PLUG (MICRO CONNECTOR) 6P			
					(E,MX,AR,HK,MY,SP,KR,AUS)
CN801	1-691-766-11	PLUG (MICRO CONNECTOR) 4P			
					(US,AEP,UK,G,AED,CIS)
CN803	1-778-982-21	CONNECTOR, BOARD TO BOARD 13P			
CN804	1-778-982-21	CONNECTOR, BOARD TO BOARD 13P			
		< DIODE >			
D801	8-719-911-19	DIODE 1SS133T-72			
D802	8-719-911-19	DIODE 1SS133T-72			
D821	8-719-911-19	DIODE 1SS133T-72			
D831	8-719-911-19	DIODE 1SS133T-72			
D851	8-719-911-19	DIODE 1SS133T-72			
D871	8-719-911-19	DIODE 1SS133T-72			
D881	8-719-911-19	DIODE 1SS133T-72			
D911	8-719-302-38	DIODE RBV-602-01 (US)			
D911	8-719-510-68	DIODE D5SBA204101 (EXCEPT US)			
D951	8-719-510-68	DIODE D5SBA204101			
					(E,MX,AR,HK,MY,SP,KR,AUS)
D961	8-719-947-58	DIODE MTZJ-T-72-13C			
					(E,MX,AR,HK,MY,SP,KR,AUS)
D962	8-719-947-58	DIODE MTZJ-T-72-13C			
					(E,MX,AR,HK,MY,SP,KR,AUS)
D963	8-719-911-19	DIODE 1SS133T-72			
D981	8-719-024-99	DIODE 11ES2-NTA2B			
D982	8-719-079-21	DIODE MTZJ-T-72-20D			
D983	8-719-079-21	DIODE MTZJ-T-72-20D			
D984	8-719-160-56	DIODE RD12F-T7B2			
D985	8-719-911-19	DIODE 1SS133T-72			
					(E,MX,AR,HK,MY,SP,KR,AUS)
D986	8-719-911-19	DIODE 1SS133T-72			
					(E,MX,AR,HK,MY,SP,KR,AUS)
D991	8-719-024-99	DIODE 11ES2-NTA2B			
D992	8-719-024-99	DIODE 11ES2-NTA2B			
D993	8-719-024-99	DIODE 11ES2-NTA2B			
D994	8-719-024-99	DIODE 11ES2-NTA2B			
D995	8-719-024-99	DIODE 11ES2-NTA2B			
D996	8-719-024-99	DIODE 11ES2-NTA2B			
D997	8-719-024-99	DIODE 11ES2-NTA2B			
D998	8-719-024-99	DIODE 11ES2-NTA2B			
		< TERMINAL >			
* EPT951	1-537-738-21	TERMINAL, EARTH			
		< IC >			
IC801	8-749-017-04	IC STK412-030 (E,MX,AR,HK,MY,SP,KR,AUS)			
IC801	8-749-017-14	IC STK442-110 (US,AEP,UK,G,AED,CIS)			

FRONT AMP

Ref. No.	Part No.	Description	Remarks
		< COIL >	
L811	1-420-872-00	COIL, AIR-CORE	(AEP,UK,G,AED,CIS)
L861	1-420-872-00	COIL, AIR-CORE	(AEP,UK,G,AED,CIS)
		< TRANSISTOR >	
Q801	8-729-140-84	TRANSISTOR 2SC1841TP-PAFAEA	
Q821	8-729-231-55	TRANSISTOR 2SC2878AB-TPE2	
Q822	8-729-900-63	TRANSISTOR BN1F4M-TP	
Q841	8-729-140-84	TRANSISTOR 2SC1841TP-PAFAEA	
Q842	8-729-119-78	TRANSISTOR 2SC2785TP-HFE	
Q851	8-729-140-84	TRANSISTOR 2SC1841TP-PAFAEA	
Q871	8-729-231-55	TRANSISTOR 2SC2878AB-TPE2	
Q881	8-729-119-76	TRANSISTOR 2SA1175TP-HFE	
Q883	8-729-119-78	TRANSISTOR 2SC2785TP-HFE	(E,MX,AR,HK,MY,SP,KR,AUS)
Q883	8-729-140-84	TRANSISTOR 2SC1841TP-PAFAEA	(US,AEP,UK,G,AED,CIS)
Q891	8-729-140-84	TRANSISTOR 2SC1841TP-PAFAEA	
Q892	8-729-140-84	TRANSISTOR 2SC1841TP-PAFAEA	
Q893	8-729-140-82	TRANSISTOR 2SA988TP-PAFAEA	
Q894	8-729-119-78	TRANSISTOR 2SC2785TP-HFE	
Q895	8-729-119-78	TRANSISTOR 2SC2785TP-HFE	
Q896	8-729-119-78	TRANSISTOR 2SC2785TP-HFE	
Q897	8-729-119-78	TRANSISTOR 2SC2785TP-HFE	
Q961	8-729-140-84	TRANSISTOR 2SC1841TP-PAFAEA	
Q962	8-729-140-82	TRANSISTOR 2SA1376-T-L	
Q963	8-729-140-84	TRANSISTOR 2SC1841TP-PAFAEA	
Q981	8-729-048-52	TRANSISTOR 2SA1932(TP)	
		< RESISTOR >	
R801	1-249-417-11	CARBON 1K 5% 1/4W	F
R802	1-249-438-11	CARBON 56K 5% 1/4W	
R803	1-249-414-11	CARBON 560 5% 1/4W	F (E,MX,AR,HK,MY,SP,KR,AUS)
R803	1-249-415-11	CARBON 680 5% 1/4W	F (US,AEP,UK,G,AED,CIS)
R804	1-249-438-11	CARBON 56K 5% 1/4W	
⚠R805	1-234-499-21	ENCAPSULATED COMPONENT	
R806	1-249-417-11	CARBON 1K 5% 1/4W	F
R807	1-249-431-11	CARBON 15K 5% 1/4W	
R808	1-249-441-11	CARBON 100K 5% 1/4W	
R809	1-260-076-11	CARBON 10 5% 1/2W	
R811	1-260-076-11	CARBON 10 5% 1/2W	(AEP,UK,G,AED,CIS)
R812	1-260-076-11	CARBON 10 5% 1/2W	(AEP,UK,G,AED,CIS)
R814	1-249-437-11	CARBON 47K 5% 1/4W	
R815	1-249-437-11	CARBON 47K 5% 1/4W	
R821	1-260-089-11	CARBON 150 5% 1/2W	
R822	1-260-089-11	CARBON 150 5% 1/2W	
R823	1-260-089-11	CARBON 150 5% 1/2W	
R824	1-260-089-11	CARBON 150 5% 1/2W	
R825	1-249-402-11	CARBON 56 5% 1/4W	F
R826	1-249-417-11	CARBON 1K 5% 1/4W	F
R827	1-249-433-11	CARBON 22K 5% 1/4W	
R828	1-249-417-11	CARBON 1K 5% 1/4W	F
R829	1-249-437-11	CARBON 47K 5% 1/4W	
R830	1-249-417-11	CARBON 1K 5% 1/4W	F
R841	1-249-441-11	CARBON 100K 5% 1/4W	
R842	1-249-441-11	CARBON 100K 5% 1/4W	
R843	1-249-439-11	CARBON 68K 5% 1/4W	
R851	1-249-417-11	CARBON 1K 5% 1/4W	F
R852	1-249-438-11	CARBON 56K 5% 1/4W	
R853	1-249-414-11	CARBON 560 5% 1/4W	F (E,MX,AR,HK,MY,SP,KR,AUS)
R853	1-249-415-11	CARBON 680 5% 1/4W	F (US,AEP,UK,G,AED,CIS)
R854	1-249-438-11	CARBON 56K 5% 1/4W	
⚠R855	1-234-499-21	ENCAPSULATED COMPONENT	
R856	1-249-417-11	CARBON 1K 5% 1/4W	F
R857	1-249-431-11	CARBON 15K 5% 1/4W	
R858	1-249-441-11	CARBON 100K 5% 1/4W	
R859	1-260-076-11	CARBON 10 5% 1/2W	
R861	1-260-076-11	CARBON 10 5% 1/2W	(AEP,UK,G,AED,CIS)
R862	1-260-076-11	CARBON 10 5% 1/2W	(AEP,UK,G,AED,CIS)
R871	1-260-089-11	CARBON 150 5% 1/2W	
R872	1-260-089-11	CARBON 150 5% 1/2W	
R873	1-260-089-11	CARBON 150 5% 1/2W	
R874	1-260-089-11	CARBON 150 5% 1/2W	
R875	1-249-402-11	CARBON 56 5% 1/4W	F
R876	1-249-417-11	CARBON 1K 5% 1/4W	F
R877	1-249-433-11	CARBON 22K 5% 1/4W	
R878	1-249-417-11	CARBON 1K 5% 1/4W	F
R879	1-249-441-11	CARBON 100K 5% 1/4W	
R880	1-247-903-00	CARBON 1M 5% 1/4W	
⚠R881	1-216-454-11	METAL OXIDE 390 5% 2W	(E,MX,AR,HK,MY,SP,KR,AUS)
⚠R881	1-216-457-00	METAL OXIDE 1.2K 5% 2W	(US,AEP,UK,G,AED,CIS)
R883	1-249-437-11	CARBON 47K 5% 1/4W	
R885	1-249-429-11	CARBON 10K 5% 1/4W	
R887	1-249-441-11	CARBON 100K 5% 1/4W	
R889	1-249-429-11	CARBON 10K 5% 1/4W	
R891	1-249-438-11	CARBON 56K 5% 1/4W	
R892	1-249-439-11	CARBON 68K 5% 1/4W	
R894	1-249-429-11	CARBON 10K 5% 1/4W	
R895	1-249-429-11	CARBON 10K 5% 1/4W	
R896	1-249-435-11	CARBON 33K 5% 1/4W	
R897	1-249-433-11	CARBON 22K 5% 1/4W	
R898	1-249-425-11	CARBON 4.7K 5% 1/4W	F
R900	1-249-425-11	CARBON 4.7K 5% 1/4W	F
R951	1-215-877-11	METAL OXIDE 22K 5% 1W	(E,MX,AR)
R952	1-215-877-11	METAL OXIDE 22K 5% 1W	(E,MX,AR)
R961	1-215-870-11	METAL OXIDE 1.5K 5% 1W	(E,MX,AR,HK,MY,SP,KR,AUS)
R962	1-215-870-11	METAL OXIDE 1.5K 5% 1W	(E,MX,AR,HK,MY,SP,KR,AUS)
⚠R963	1-212-881-11	FUSIBLE 100 5% 1/4W	
⚠R964	1-212-881-11	FUSIBLE 100 5% 1/4W	
R965	1-249-431-11	CARBON 15K 5% 1/4W	
R966	1-249-435-11	CARBON 33K 5% 1/4W	
R967	1-249-435-11	CARBON 33K 5% 1/4W	(E,MX,AR,HK,MY,SP,KR,AUS)
R967	1-249-429-11	CARBON 10K 5% 1/4W	(US,AEP,UK,G,AED,CIS)

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

Ref. No.	Part No.	Description			Remarks
⚠ R968	1-202-972-61	FUSIBLE	1	5%	1/4W
R969	1-249-439-11	CARBON	68K	5%	1/4W
R970	1-249-433-11	CARBON	22K	5%	1/4W
R971	1-249-421-11	CARBON	2.2K	5%	1/4W F
R972	1-249-433-11	CARBON	22K	5%	1/4W
R973	1-249-421-11	CARBON	2.2K	5%	1/4W F
R974	1-249-429-11	CARBON	10K	5%	1/4W
R982	1-249-427-11	CARBON	6.8K	5%	1/4W F
R983	1-249-421-11	CARBON	2.2K	5%	1/4W F
R984	1-249-429-11	CARBON	10K	5%	1/4W
R985	1-249-416-11	CARBON	820	5%	1/4W F
			(E,MX,AR,HK,MY,SP,KR,AUS)		
R986	1-249-416-11	CARBON	820	5%	1/4W F
			(E,MX,AR,HK,MY,SP,KR,AUS)		
R987	1-249-419-11	CARBON	1.5K	5%	1/4W F
			(E,MX,AR,HK,MY,SP,KR,AUS)		
		< RELAY >			
RY881	1-755-168-11	RELAY (E,MX,AR,HK,MY,SP,KR,AUS)			
RY881	1-515-920-11	RELAY (24V) (US,AEP,UK,G,AED,CIS)			
		< THERMISTOR(POSITIVE) >			
THP841	1-807-796-11	THERMISTOR			
		< TERMINAL >			
TM801	1-694-677-11	TERMINAL BOARD (4P) (FRONT SPEAKER)			

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Ref. No.	Part No.	Description			Remarks
	1-676-971-11	HP BOARD			
		*********			
		< CAPACITOR >			
C1691	1-162-294-31	CERAMIC	0.001uF	10%	50V
C1692	1-162-294-31	CERAMIC	0.001uF	10%	50V
C1693	1-164-159-11	CERAMIC	0.1uF		50V
		< CONNECTOR >			
CN1691	1-785-316-51	PIN, CONNECTOR (STRAIGHT) 4P			
		< TERMINAL >			
* EPT169	1-537-738-21	TERMINAL, EARTH			
		< JACK >			
J1691	1-793-829-11	JACK, HEADPHONE (PHONES)			

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Ref. No.	Part No.	Description			Remarks
	1-671-505-11	IN SW BOARD			
		************			
		< CONNECTOR >			
* CN710	1-568-941-11	PIN, CONNECTOR 3P			
		< SWITCH >			
S703	1-771-218-11	SWITCH, MICRO (MID IN SW)			
S704	1-771-218-11	SWITCH, MICRO (IN SW)			

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Ref. No.	Part No.	Description			Remarks
	1-671-502-11	INT/COUNT SW BOARD			
		*******************			
S705	1-771-264-11	SWITCH, PUSH (DETECTION) (1 KEY)			
		(INIT SW)			
S706	1-771-264-11	SWITCH, PUSH (DETECTION) (1 KEY)			
		(COUNT SW)			

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Ref. No.	Part No.	Description			Remarks
	A-2007-838-A	LEAF SW BOARD, COMPLETE			
		************************			
		< CAPACITOR >			
C1001	1-107-716-11	ELECT	33uF	20%	10V
		< CONNECTOR >			
CN1001	1-568-860-21	SOCKET, CONNECTOR 17P			
		< DIODE >			
D1001	8-719-911-19	DIODE 1SS133T-72			
D1002	8-719-911-19	DIODE 1SS133T-72			
		< IC >			
IC1001	8-749-016-76	IC RPI-321			
IC1002	8-749-016-76	IC RPI-321			
		< TRANSISTOR >			
Q1001	8-729-029-56	TRANSISTOR DTA144ESA-TP			
		< RESISTOR >			
R907	1-247-879-11	CARBON	100K	5%	1/4W
R1001	1-249-409-11	CARBON	220	5%	1/4W F
R1002	1-249-409-11	CARBON	220	5%	1/4W F
R1003	1-249-414-11	CARBON	560	5%	1/4W F
R1004	1-247-834-11	CARBON	1.3K	5%	1/4W
R1005	1-247-818-11	CARBON	300	5%	1/4W
R1006	1-247-864-11	CARBON	24K	5%	1/4W
R1007	1-247-780-00	CARBON	7.5	5%	1/4W
R1008	1-249-417-11	CARBON	1K	5%	1/4W F
		< VARIABLE RESISTOR >			
RV1001	1-241-785-11	RES, ADJ, CARBON 10K			
RV1002	1-241-785-11	RES, ADJ, CARBON 10K			
		< SWITCH >			
S1001	1-570-953-11	SWITCH, PUSH (1 KEY) (DECK A PLAY)			
S1002	1-570-953-11	SWITCH, PUSH (1 KEY) (DECK B PLAY)			
S1003	1-771-333-11	SWITCH, LEAF (DECK A HALF)			
S1004	1-771-536-11	SWITCH, LEAF (DECK A 120/70)			
S1005	1-771-536-11	SWITCH, LEAF (DECK A REC)			
S1006	1-771-333-11	SWITCH, LEAF (DECK B HALF)			
S1008	1-771-536-11	SWITCH, LEAF (DECK B 120/70)			
S1009	1-771-536-11	SWITCH, LEAF (DECK B REC)			

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The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

LOAD MOTOR | MAIN

Ref. No.	Part No.	Description			Remarks
	1-671-508-11	LOAD MOTOR BOARD ******************			
		< CAPACITOR >			
C703	1-162-306-11	CERAMIC	0.01uF	30%	16V
C704	1-126-964-11	ELECT	10uF	20%	50V
C712	1-162-306-11	CERAMIC	0.01uF	30%	16V
		< CONNECTOR >			
CN713	1-506-469-11	PIN, CONNECTOR 4P			
		< DIODE >			
D702	8-719-109-85	DIODE MTZJ-T-72-5.1B			
		< IC >			
IC702	8-759-633-65	IC M54641L			
		< RESISTOR >			
R703	1-249-411-11	CARBON	330	5%	1/4W
R704	1-249-401-11	CARBON	47	5%	1/4W F

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Ref. No.	Part No.	Description			Remarks
	A-4473-375-A	MAIN BOARD, COMPLETE (US) *********************			
	A-4473-380-A	MAIN BOARD, COMPLETE (HK,MY,SP,KR) *********************			
	A-4473-390-A	MAIN BOARD, COMPLETE (AEP,UK,G,AED,CIS) *********************			
	A-4473-878-A	MAIN BOARD, COMPLETE (E,MX,AR) *********************			
	A-4475-201-A	MAIN BOARD, COMPLETE (AUS) *********************			
	7-685-646-79	SCREW +BVTP	3X8	TYPE2 N-S	
		< BATTERY >			
BT900	1-125-623-11	DOUBLE LAYER	0.22F		5.5V
		< CAPACITOR >			
C101	1-126-960-11	ELECT	1uF	20%	50V
C105	1-126-964-11	ELECT	10uF	20%	50V
					(E,MX,AR,HK,MY,SP,KR)
C107	1-136-157-00	FILM	0.022uF	5%	50V
C108	1-136-157-00	FILM	0.022uF	5%	50V
C109	1-163-019-00	CERAMIC CHIP	0.0068uF	10%	50V
C110	1-163-019-00	CERAMIC CHIP	0.0068uF	10%	50V
C111	1-164-161-11	CERAMIC CHIP	0.0022uF	10%	100V
C112	1-164-161-11	CERAMIC CHIP	0.0022uF	10%	100V
C113	1-126-964-11	ELECT	10uF	20%	50V
C114	1-136-495-11	FILM	0.068uF	5%	50V
C115	1-130-481-00	MYLAR	0.0068uF	5%	50V
C116	1-130-481-00	MYLAR	0.0068uF	5%	50V
C117	1-163-017-00	CERAMIC CHIP	0.0047uF	5%	50V
C118	1-164-161-11	CERAMIC CHIP	0.0022uF	10%	100V
C119	1-136-159-00	FILM	0.033uF	5%	50V
C120	1-126-964-11	ELECT	10uF	20%	50V
C121	1-126-964-11	ELECT	10uF	20%	50V
C122	1-136-165-00	FILM	0.1uF	5%	50V
C123	1-136-165-00	FILM	0.1uF	5%	50V
C124	1-126-960-11	ELECT	1uF	20%	50V
C126	1-136-165-00	FILM	0.1uF	5%	50V
C127	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C128	1-104-664-11	ELECT	47uF	20%	16V
C129	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C132	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C134	1-126-964-11	ELECT	10uF	20%	50V
C135	1-126-960-11	ELECT	1uF	20%	50V
C136	1-126-964-11	ELECT	10uF	20%	50V
C137	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C139	1-104-664-11	ELECT	47uF	20%	16V
C140	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C141	1-126-960-11	ELECT	1uF	20%	50V
C142	1-163-001-11	CERAMIC CHIP	220PF	10%	50V
					(AEP,UK,G,AED,CIS)
C143	1-104-665-11	ELECT	100uF	20%	10V
C144	1-104-665-11	ELECT	100uF	20%	10V
C151	1-126-960-11	ELECT	1uF	20%	50V
C155	1-126-964-11	ELECT	10uF	20%	50V
C157	1-136-157-00	FILM	0.022uF	5%	50V
C158	1-136-157-00	FILM	0.022uF	5%	50V
C159	1-163-019-00	CERAMIC CHIP	0.0068uF	10%	50V
C160	1-163-019-00	CERAMIC CHIP	0.0068uF	10%	50V
C161	1-164-161-11	CERAMIC CHIP	0.0022uF	10%	100V
C162	1-164-161-11	CERAMIC CHIP	0.0022uF	10%	100V
C163	1-126-964-11	ELECT	10uF	20%	50V
C164	1-136-495-11	FILM	0.068uF	5%	50V
C165	1-130-481-00	MYLAR	0.0068uF	5%	50V
C166	1-130-481-00	MYLAR	0.0068uF	5%	50V
C167	1-163-017-00	CERAMIC CHIP	0.0047uF	5%	50V
C168	1-164-161-11	CERAMIC CHIP	0.0022uF	10%	100V
C169	1-136-159-00	FILM	0.033uF	5%	50V
C170	1-126-964-11	ELECT	10uF	20%	50V
C171	1-126-964-11	ELECT	10uF	20%	50V
C172	1-136-165-00	FILM	0.1uF	5%	50V
C173	1-136-165-00	FILM	0.1uF	5%	50V
C174	1-126-960-11	ELECT	1uF	20%	50V
C181	1-126-961-11	ELECT	2.2uF	20%	50V
C191	1-126-960-11	ELECT	1uF	20%	50V
C192	1-163-001-11	CERAMIC CHIP	220PF	10%	50V
					(AEP,UK,G,AED,CIS)
C198	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C288	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C291	1-126-960-11	ELECT	1uF	20%	50V
C292	1-126-960-11	ELECT	1uF	20%	50V
C293	1-126-960-11	ELECT	1uF	20%	50V
C294	1-126-960-11	ELECT	1uF	20%	50V
C295	1-104-664-11	ELECT	47uF	20%	16V
C296	1-163-021-91	CERAMIC CHIP	0.01uF	10%	50V
C297	1-126-963-11	ELECT	4.7uF	20%	50V
C298	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C299	1-126-963-11	ELECT	4.7uF	20%	50V
C301	1-126-960-11	ELECT	1uF	20%	50V
C302	1-130-479-00	MYLAR	0.0047uF	5%	50V
C303	1-136-165-00	FILM	0.1uF	5%	50V
C304	1-136-165-00	FILM	0.1uF	5%	50V
C305	1-126-964-11	ELECT	10uF	20%	50V
C306	1-126-960-11	ELECT	1uF	20%	50V

Ref. No.	Part No.	Description			Remarks
C307	1-126-959-11	ELECT	0.47uF	20%	50V
C308	1-126-964-11	ELECT	10uF	20%	50V
C309	1-137-194-81	FILM	0.47uF	5%	50V
C310	1-163-005-11	CERAMIC CHIP	470PF	10%	50V
C311	1-126-964-11	ELECT	10uF	20%	50V
C312	1-126-959-11	ELECT	0.47uF	20%	50V
C313	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C314	1-126-964-11	ELECT	10uF	20%	50V
C315	1-126-963-11	ELECT	4.7uF	20%	50V
C316	1-126-933-11	ELECT	100uF	20%	16V
C317	1-104-665-11	ELECT	100uF	20%	10V
C318	1-126-959-11	ELECT	0.47uF	20%	50V
C319	1-126-959-11	ELECT	0.47uF	20%	50V
C321	1-126-964-11	ELECT	10uF	20%	50V
C322	1-126-964-11	ELECT	10uF	20%	50V
C351	1-126-960-11	ELECT	1uF	20%	50V
C352	1-130-479-00	MYLAR	0.0047uF	5%	50V
C353	1-136-165-00	FILM	0.1uF	5%	50V
C354	1-136-165-00	FILM	0.1uF	5%	50V
C355	1-126-964-11	ELECT	10uF	20%	50V
C356	1-126-960-11	ELECT	1uF	20%	50V
C357	1-126-959-11	ELECT	0.47uF	20%	50V
C358	1-126-964-11	ELECT	10uF	20%	50V
C359	1-137-194-81	FILM	0.47uF	5%	50V
C360	1-163-005-11	CERAMIC CHIP	470PF	10%	50V
C362	1-117-721-11	CERAMIC CHIP	4700PF	5%	25V
C363	1-163-017-00	CERAMIC CHIP	0.0047uF	5%	50V
C368	1-126-959-11	ELECT	0.47uF	20%	50V
C369	1-126-959-11	ELECT	0.47uF	20%	50V
C410	1-163-231-11	CERAMIC CHIP	15PF	5%	50V
C411	1-163-235-11	CERAMIC CHIP	22PF	5%	50V
C412	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C414	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C416	1-126-916-11	ELECT	1000uF	20%	6.3V
C462	1-104-665-11	ELECT	100uF	20%	10V
C464	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C497	1-126-964-11	ELECT	10uF	20%	50V
C498	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C499	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C501	1-136-165-00	FILM	0.1uF	5%	50V
C502	1-136-165-00	FILM	0.1uF	5%	50V
C503	1-126-964-11	ELECT	10uF	20%	50V
C506	1-136-165-00	FILM	0.1uF	5%	50V
C507	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C508	1-126-964-11	ELECT	10uF	20%	50V
C509	1-104-665-11	ELECT	100uF	20%	10V
C511	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C521	1-104-665-11	ELECT	100uF	20%	10V
C531	1-163-033-91	CERAMIC CHIP	0.022uF		50V
C532	1-126-935-11	ELECT	470uF	20%	6.3V
C535	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C536	1-126-925-11	ELECT	470uF	20%	10V
C537	1-126-935-11	ELECT	470uF	20%	16V
C550	1-163-038-91	CERAMIC CHIP	0.1uF		25V (US)
C551	1-104-665-11	ELECT	100uF	20%	10V (US)
C702	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C703	1-126-961-11	ELECT	2.2uF	20%	50V
C704	1-126-961-11	ELECT	2.2uF	20%	50V
C705	1-126-961-11	ELECT	2.2uF	20%	50V
C706	1-126-961-11	ELECT	2.2uF	20%	50V
C707	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C708	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C709	1-126-960-11	ELECT	1uF	20%	50V
C710	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C711	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C714	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C901	1-115-364-11	ELECT	22000uF	20%	16V
C902	1-126-768-11	ELECT	2200uF	20%	16V
C903	1-126-964-11	ELECT	10uF	20%	50V
C904	1-126-964-11	ELECT	10uF	20%	50V
C905	1-126-964-11	ELECT	10uF	20%	50V
C906	1-126-964-11	ELECT	10uF	20%	50V
C907	1-126-924-11	ELECT	330uF	20%	6.3V
C908	1-126-924-11	ELECT	330uF	20%	6.3V
C909	1-126-964-11	ELECT	10uF	20%	50V
C911	1-126-916-11	ELECT	1000uF	20%	6.3V
C912	1-104-665-11	ELECT	100uF	20%	10V
C914	1-126-916-11	ELECT	1000uF	20%	6.3V
C915	1-126-916-11	ELECT	1000uF	20%	6.3V
C920	1-126-953-11	ELECT	2200uF	20%	35V
C921	1-126-964-11	ELECT	10uF	20%	50V
C922	1-126-933-11	ELECT	100uF	20%	16V
C926	1-126-964-11	ELECT	10uF	20%	50V
C927	1-126-964-11	ELECT	10uF	20%	50V
C928	1-126-964-11	ELECT	10uF	20%	50V
C929	1-126-964-11	ELECT	10uF	20%	50V
C931	1-126-964-11	ELECT	10uF	20%	50V
C932	1-126-935-11	ELECT	470uF	20%	16V
C935	1-126-964-11	ELECT	10uF	20%	50V
C936	1-126-933-11	ELECT	100uF	20%	16V
C941	1-163-038-91	CERAMIC CHIP	0.1uF		25V
		< CONNECTOR >			
CN103	1-785-316-11	PIN, CONNECTOR (STRAIGHT) 4P			(HK,MY,SP,KR)
* CN302	1-568-449-11	HOUSING, CONNECTOR (PC BOARD)3P			
CN304	1-784-778-11	CONNECTOR, FFC 17P			
CN305	1-784-776-11	CONNECTOR, FFC 15P			
CN401	1-785-320-11	PIN, CONNECTOR (STRAIGHT) 8P			
CN502	1-784-776-11	CONNECTOR, FFC 15P (AEP,UK,G,AED,CIS)			
CN502	1-784-774-11	CONNECTOR, FFC 13P			(US,E,MX,AR,HK,MY,SP,KR,AUS)
CN503	1-568-830-11	CONNECTOR, FFC 11P			
CN522	1-784-778-11	CONNECTOR, FFC 17P			
CN523	1-784-780-11	CONNECTOR, FFC 19P			
CN701	1-784-786-11	CONNECTOR, FFC 25P			
CN901	1-778-981-21	CONNECTOR, BOARD TO BOARD 13P			
CN902	1-778-981-21	CONNECTOR, BOARD TO BOARD 13P			
* CN941	1-564-518-11	PLUG, CONNECTOR 3P			
		< DIODE >			
D100	8-719-200-82	DIODE 11ES2-TB5			
D101	8-719-200-82	DIODE 11ES2-TB5			
D181	8-719-988-61	DIODE 1SS355TE-17			
D182	8-719-988-61	DIODE 1SS355TE-17			
D501	8-719-988-61	DIODE 1SS355TE-17			
D502	8-719-988-61	DIODE 1SS355TE-17			

Ref. No.	Part No.	Description				Remarks
D503	8-719-988-61	DIODE 1SS355TE-17				(E,MX,AR,HK,MY,SP,KR,AUS)
D504	8-719-988-61	DIODE 1SS355TE-17				
D505	8-719-988-61	DIODE 1SS355TE-17				
D506	8-719-988-61	DIODE 1SS355TE-17				
D507	8-719-200-82	DIODE 11ES2-TB5				
D508	8-719-988-61	DIODE 1SS355TE-17				
D509	8-719-988-61	DIODE 1SS355TE-17				
D511	8-719-988-61	DIODE 1SS355TE-17				
D512	8-719-988-61	DIODE 1SS355TE-17				
D513	8-719-988-61	DIODE 1SS355TE-17				
D514	8-719-988-61	DIODE 1SS355TE-17				(US,AEP,UK,G,AED,CIS)
D912	8-719-200-82	DIODE 11ES2-TB5				
D913	8-719-200-82	DIODE 11ES2-TB5				
D914	8-719-200-82	DIODE 11ES2-TB5				
D915	8-719-200-82	DIODE 11ES2-TB5				
D916	8-719-200-82	DIODE 11ES2-TB5				
D917	8-719-200-82	DIODE 11ES2-TB5				
D918	8-719-200-82	DIODE 11ES2-TB5				
D919	8-719-988-61	DIODE 1SS355TE-17				
D920	8-719-200-82	DIODE 11ES2-TB5				
D921	8-719-200-82	DIODE 11ES2-TB5				
D922	8-719-200-82	DIODE 11ES2-TB5				
D945	8-719-200-82	DIODE 11ES2-TB5				
D946	8-719-200-82	DIODE 11ES2-TB5				
D947	8-719-200-82	DIODE 11ES2-TB5				
D951	8-719-200-82	DIODE 11ES2-TB5				
		< TERMINAL >				
* EP901	1-537-738-21	TERMINAL, EARTH				
		< FERRITE BEAD >				
FB416	1-414-772-11	FERRITE	0UH			
FB462	1-414-772-11	FERRITE	0UH			
FB499	1-414-772-11	FERRITE	0UH			
FB500	1-414-772-11	FERRITE	0UH			
FB501	1-414-772-11	FERRITE	0UH			
FB502	1-414-772-11	FERRITE	0UH			
FB503	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
FB504	1-414-772-11	FERRITE	0UH			
FB505	1-414-772-11	FERRITE	0UH			
FB506	1-414-772-11	FERRITE	0UH			
FB507	1-414-772-11	FERRITE	0UH			
FB508	1-414-772-11	FERRITE	0UH			
FB532	1-414-772-11	FERRITE	0UH			
FB533	1-414-772-11	FERRITE	0UH			
FB534	1-414-772-11	FERRITE	0UH			
FB700	1-414-772-11	FERRITE	0UH			
		< HEAT SINK >				
HS905	4-875-327-31	HEAT SINK				
		< IC >				
IC101	8-759-663-66	IC M61502FP				
IC202	8-759-652-01	IC LA2615				
IC301	8-759-652-02	IC HA12226F				
IC401	8-759-676-74	IC M30620MCA-A54FP				
IC501	8-759-635-63	IC M51943BSL-TP				

Ref. No.	Part No.	Description		Remarks
IC502	8-759-481-02	IC M62016L		
IC503	8-759-548-57	IC SN74LV00ANSR		
IC551	8-749-923-05	IC TORX178B (OPTICAL IN) (US)		
IC901	8-759-231-53	IC M5F7805L		
IC902	8-759-701-65	IC M5F79M05L		
IC903	8-759-158-62	IC TA78057S		
IC905	8-759-231-58	IC M5F7812L		
IC906	8-759-604-86	IC M5F7807L		
IC908	8-759-701-75	IC NJM7805FA		
IC909	8-759-604-32	IC M5F7810L		
IC910	8-759-686-72	IC uPD29L04J-T		
		< JACK >		
J101	1-785-868-11	JACK, PIN 2P (VIDEO(AUDIO) IN)		
J102	1-770-377-31	JACK, PIN 1P (WOOFER OUT)		
		< JUMPER RESISTOR >		
JR2	1-216-295-91	SHORT	0	
JR3	1-216-295-91	SHORT	0	
JR23	1-216-295-91	SHORT	0	
JR25	1-216-296-91	SHORT	0	
JR37	1-216-296-91	SHORT	0	
JR42	1-216-296-91	SHORT	0	
JR44	1-216-296-91	SHORT	0	
JR47	1-216-296-91	SHORT	0	
JR55	1-216-296-91	SHORT	0	
JR501	1-216-295-91	SHORT	0	(AEP,UK,G,AED,CIS)
JR502	1-216-295-91	SHORT	0	(AEP,UK,G,AED,CIS)
JR503	1-216-295-91	SHORT	0	(AEP,UK,G,AED,CIS)
JR511	1-216-295-91	SHORT	0	
JR923	1-216-296-91	SHORT	0	(US,E,MX,AR,HK,MY,SP,KR,AUS)
JR924	1-216-296-91	SHORT	0	(US,E,MX,AR,HK,MY,SP,KR,AUS)
		< COIL >		
L301	1-410-393-11	INDUCTOR CHIP	100uH	
L551	1-410-393-11	INDUCTOR CHIP	100uH	(US)
L552	1-410-381-11	INDUCTOR CHIP	10uH	
		< TRANSISTOR >		
Q101	8-729-107-43	TRANSISTOR 2SC3624-T1L1718		
Q102	8-729-107-43	TRANSISTOR 2SC3624-T1L1718		
Q130	8-729-141-30	TRANSISTOR 2SC3623ATP-LK		
Q151	8-729-107-43	TRANSISTOR 2SC3624-T1L1718		
Q152	8-729-107-43	TRANSISTOR 2SC3624-T1L1718		
Q181	8-729-900-53	TRANSISTOR DTC114EKA-T146		
Q182	8-729-027-23	TRANSISTOR DTA114EKA-T146		
Q183	8-729-027-23	TRANSISTOR DTA114EKA-T146		
Q184	8-729-027-23	TRANSISTOR DTA114EKA-T146		
Q185	8-729-027-23	TRANSISTOR DTA114EKA-T146		
Q391	8-729-140-04	TRANSISTOR 2SB1116-TP-LK		
Q392	8-729-900-53	TRANSISTOR DTC114EKA-T146		
Q393	8-729-140-04	TRANSISTOR 2SB1116-TP-LK		
Q394	8-729-900-53	TRANSISTOR DTC114EKA-T146		
Q395	8-729-900-53	TRANSISTOR DTC114EKA-T146		
Q396	8-729-116-59	TRANSISTOR 2SB1068TP		
Q397	8-729-900-53	TRANSISTOR DTC114EKA-T146		
Q501	8-729-120-28	TRANSISTOR 2SC3052EF-T1-LEF		
Q901	8-729-040-20	TRANSISTOR RT1P137L-TP		

Ref. No.	Part No.	Description			Remarks
Q902	8-729-027-31	TRANSISTOR DTA124EKA-T146			
Q903	8-729-040-19	TRANSISTOR RT1N137L-TP			
Q904	8-729-901-00	TRANSISTOR DTC124EKA-T146			
Q905	8-729-600-22	TRANSISTOR 2SA1235TP-1EF			
Q906	8-729-027-44	TRANSISTOR DTC114TKA-T146			
Q910	8-729-040-20	TRANSISTOR RT1P137L-TP			
Q911	8-729-901-00	TRANSISTOR DTC124EKA-T146			
Q912	8-729-900-53	TRANSISTOR DTC114EKA-T146			
Q913	8-729-040-20	TRANSISTOR RT1P137L-TP			
Q941	8-729-111-29	TRANSISTOR 2SD1616A-TP-LK			
Q942	8-729-600-22	TRANSISTOR 2SA1235TP-1EF			
		< RESISTOR >			
R101	1-216-073-00	METAL CHIP	10K	5%	1/10W
R102	1-216-073-00	METAL CHIP	10K	5%	1/10W
R103	1-216-073-00	METAL CHIP	10K	5%	1/10W
R104	1-216-121-91	RES-CHIP	1M	5%	1/10W
R105	1-216-113-00	METAL CHIP	470K	5%	1/10W
R106	1-216-081-00	METAL CHIP	22K	5%	1/10W
R107	1-216-053-00	METAL CHIP	1.5K	5%	1/10W
R109	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R110	1-216-097-91	RES-CHIP	100K	5%	1/10W
R111	1-216-089-91	RES-CHIP	47K	5%	1/10W
R112	1-216-073-00	METAL CHIP	10K	5%	1/10W
R121	1-216-025-91	RES-CHIP	100	5%	1/10W
R122	1-216-025-91	RES-CHIP	100	5%	1/10W
R123	1-216-025-91	RES-CHIP	100	5%	1/10W
R124	1-216-073-00	METAL CHIP	10K	5%	1/10W
R131	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R132	1-216-049-91	RES-CHIP	1K	5%	1/10W
R133	1-216-097-91	RES-CHIP	100K	5%	1/10W
R134	1-216-073-00	METAL CHIP	10K	5%	1/10W
R135	1-216-073-00	METAL CHIP	10K	5%	1/10W
					(HK,MY,SP,KR)
R136	1-216-097-91	RES-CHIP	100K	5%	1/10W
					(HK,MY,SP,KR)
R137	1-216-025-91	RES-CHIP	100	5%	1/10W
					(HK,MY,SP,KR)
R141	1-216-049-91	RES-CHIP	1K	5%	1/10W
R142	1-216-097-91	RES-CHIP	100K	5%	1/10W
R151	1-216-073-00	METAL CHIP	10K	5%	1/10W
R152	1-216-073-00	METAL CHIP	10K	5%	1/10W
R153	1-216-073-00	METAL CHIP	10K	5%	1/10W
R154	1-216-121-91	RES-CHIP	1M	5%	1/10W
R155	1-216-113-00	METAL CHIP	470K	5%	1/10W
R156	1-216-081-00	METAL CHIP	22K	5%	1/10W
R157	1-216-053-00	METAL CHIP	1.5K	5%	1/10W
R159	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R160	1-216-097-91	RES-CHIP	100K	5%	1/10W
R161	1-216-089-91	RES-CHIP	47K	5%	1/10W
R162	1-216-073-00	METAL CHIP	10K	5%	1/10W
R181	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R182	1-216-097-91	RES-CHIP	100K	5%	1/10W
R183	1-216-097-91	RES-CHIP	100K	5%	1/10W
R191	1-216-049-91	RES-CHIP	1K	5%	1/10W
R192	1-216-097-91	RES-CHIP	100K	5%	1/10W
R291	1-216-049-91	RES-CHIP	1K	5%	1/10W
R292	1-216-049-91	RES-CHIP	1K	5%	1/10W
R293	1-216-025-91	RES-CHIP	100	5%	1/10W
R294	1-216-025-91	RES-CHIP	100	5%	1/10W

Ref. No.	Part No.	Description			Remarks
R300	1-216-001-00	METAL CHIP	10	5%	1/10W
R301	1-216-085-00	METAL CHIP	33K	5%	1/10W
R302	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R303	1-216-025-91	RES-CHIP	100	5%	1/10W
R304	1-216-025-91	RES-CHIP	100	5%	1/10W
R305	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R306	1-216-071-00	METAL CHIP	8.2K	5%	1/10W
R307	1-216-071-00	METAL CHIP	8.2K	5%	1/10W
R308	1-216-065-91	RES-CHIP	4.7K	5%	1/10W
R309	1-216-081-00	METAL CHIP	22K	5%	1/10W
R311	1-216-121-91	RES-CHIP	1M	5%	1/10W
R312	1-216-102-00	RES-CHIP	160K	5%	1/10W
R313	1-216-097-91	RES-CHIP	100K	5%	1/10W
R315	1-216-073-00	METAL CHIP	10K	5%	1/10W
R316	1-216-086-00	RES-CHIP	36K	5%	1/10W
R317	1-216-073-00	METAL CHIP	10K	5%	1/10W
R318	1-216-073-00	METAL CHIP	10K	5%	1/10W
R319	1-216-111-00	METAL CHIP	390K	5%	1/10W
R320	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R321	1-216-071-00	METAL CHIP	8.2K	5%	1/10W
R323	1-216-089-91	RES-CHIP	47K	5%	1/10W
R324	1-216-089-91	RES-CHIP	47K	5%	1/10W
R351	1-216-085-00	METAL CHIP	33K	5%	1/10W
R352	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R353	1-216-025-91	RES-CHIP	100	5%	1/10W
R354	1-216-025-91	RES-CHIP	100	5%	1/10W
R355	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R356	1-216-071-00	METAL CHIP	8.2K	5%	1/10W
R357	1-216-071-00	METAL CHIP	8.2K	5%	1/10W
R358	1-216-065-91	RES-CHIP	4.7K	5%	1/10W
R359	1-216-085-00	METAL CHIP	33K	5%	1/10W
R360	1-216-045-00	METAL CHIP	680	5%	1/10W
R361	1-216-051-00	METAL CHIP	1.2K	5%	1/10W
R363	1-216-051-00	METAL CHIP	1.2K	5%	1/10W
R364	1-216-045-00	METAL CHIP	680	5%	1/10W
R366	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R367	1-216-089-91	RES-CHIP	47K	5%	1/10W
R368	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R369	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R371	1-216-089-91	RES-CHIP	47K	5%	1/10W
R372	1-216-065-91	RES-CHIP	4.7K	5%	1/10W
R373	1-216-049-91	RES-CHIP	1K	5%	1/10W
R374	1-216-089-91	RES-CHIP	47K	5%	1/10W
R375	1-216-094-00	RES-CHIP	75K	5%	1/10W
R376	1-216-065-91	RES-CHIP	4.7K	5%	1/10W
R377	1-216-089-91	RES-CHIP	47K	5%	1/10W
R378	1-216-094-00	RES-CHIP	75K	5%	1/10W
R400	1-216-025-91	RES-CHIP	100	5%	1/10W
R401	1-216-025-91	RES-CHIP	100	5%	1/10W
R402	1-216-025-91	RES-CHIP	100	5%	1/10W
R403	1-216-025-91	RES-CHIP	100	5%	1/10W
R404	1-216-065-91	RES-CHIP	4.7K	5%	1/10W
R406	1-216-025-91	RES-CHIP	100	5%	1/10W
R407	1-216-025-91	RES-CHIP	100	5%	1/10W
R408	1-216-025-91	RES-CHIP	100	5%	1/10W
R409	1-216-073-00	METAL CHIP	10K	5%	1/10W
R411	1-216-109-00	METAL CHIP	330K	5%	1/10W
R412	1-216-025-91	RES-CHIP	100	5%	1/10W
R413	1-216-295-91	SHORT	0		
R416	1-216-073-00	METAL CHIP	10K	5%	1/10W

Ref. No.	Part No.	Description			Remarks
R417	1-216-073-00	METAL CHIP	10K	5%	1/10W
R418	1-216-025-91	RES-CHIP	100	5%	1/10W
R419	1-216-025-91	RES-CHIP	100	5%	1/10W
R420	1-216-025-91	RES-CHIP	100	5%	1/10W
R421	1-216-025-91	RES-CHIP	100	5%	1/10W
R422	1-216-065-91	RES-CHIP	4.7K	5%	1/10W
R423	1-216-025-91	RES-CHIP	100	5%	1/10W
R424	1-216-025-91	RES-CHIP	100	5%	1/10W
R425	1-216-025-91	RES-CHIP	100	5%	1/10W
R426	1-216-025-91	RES-CHIP	100	5%	1/10W
R428	1-216-025-91	RES-CHIP	100	5%	1/10W
R429	1-216-001-00	METAL CHIP	10	5%	1/10W
R430	1-216-001-00	METAL CHIP	10	5%	1/10W
R431	1-216-025-91	RES-CHIP	100	5%	1/10W
R432	1-216-025-91	RES-CHIP	100	5%	1/10W
R433	1-216-025-91	RES-CHIP	100	5%	1/10W
R434	1-216-025-91	RES-CHIP	100	5%	1/10W
R435	1-216-025-91	RES-CHIP	100	5%	1/10W
R436	1-216-073-00	METAL CHIP	10K	5%	1/10W
R437	1-216-073-00	METAL CHIP	10K	5%	1/10W
R438	1-216-049-91	RES-CHIP	1K	5%	1/10W
R440	1-216-073-00	METAL CHIP	10K	5%	1/10W
R441	1-216-073-00	METAL CHIP	10K	5%	1/10W
R446	1-216-025-91	RES-CHIP	100	5%	1/10W
R447	1-216-025-91	RES-CHIP	100	5%	1/10W
R448	1-216-025-91	RES-CHIP	100	5%	1/10W
R449	1-216-025-91	RES-CHIP	100	5%	1/10W
R450	1-216-025-91	RES-CHIP	100	5%	1/10W
R451	1-216-025-91	RES-CHIP	100	5%	1/10W
R452	1-216-025-91	RES-CHIP	100	5%	1/10W
R453	1-216-073-00	METAL CHIP	10K	5%	1/10W
R454	1-216-073-00	METAL CHIP	10K	5%	1/10W
R455	1-216-073-00	METAL CHIP	10K	5%	1/10W
R463	1-216-025-91	RES-CHIP	100	5%	1/10W
R469	1-216-025-91	RES-CHIP	100	5%	1/10W
R470	1-216-025-91	RES-CHIP	100	5%	1/10W
R471	1-216-025-91	RES-CHIP	100	5%	1/10W
R473	1-216-025-91	RES-CHIP	100	5%	1/10W
R474	1-216-025-91	RES-CHIP	100	5%	1/10W
R475	1-216-025-91	RES-CHIP	100	5%	1/10W
R476	1-216-025-91	RES-CHIP	100	5%	1/10W
R477	1-216-025-91	RES-CHIP	100	5%	1/10W
R478	1-216-025-91	RES-CHIP	100	5%	1/10W
R479	1-216-025-91	RES-CHIP	100	5%	1/10W
R480	1-216-025-91	RES-CHIP	100	5%	1/10W
R481	1-216-025-91	RES-CHIP	100	5%	1/10W
R482	1-216-025-91	RES-CHIP	100	5%	1/10W
R483	1-216-025-91	RES-CHIP	100	5%	1/10W
R484	1-216-025-91	RES-CHIP	100	5%	1/10W
R485	1-216-025-91	RES-CHIP	100	5%	1/10W
R486	1-216-025-91	RES-CHIP	100	5%	1/10W
R487	1-216-025-91	RES-CHIP	100	5%	1/10W
R488	1-216-077-91	RES-CHIP	15K	5%	1/10W
R489	1-216-025-91	RES-CHIP	100	5%	1/10W
R490	1-216-025-91	RES-CHIP	100	5%	1/10W
R491	1-216-025-91	RES-CHIP	100	5%	1/10W
R492	1-216-089-91	RES-CHIP	47K	5%	1/10W
R493	1-216-085-00	METAL CHIP	33K	5%	1/10W (AEP,UK,G,AED,CIS)
R493	1-216-089-91	RES-CHIP	47K	5%	1/10W (E,MX,AR,HK,MY,SP,KR,AUS)
R493	1-216-073-00	METAL CHIP	10K	5%	1/10W (US)
R494	1-216-081-00	METAL CHIP	22K	5%	1/10W (E,MX,AR,AUS)
R494	1-216-053-00	METAL CHIP	1.5K	5%	1/10W (HK,SP,MY,KR)
R494	1-216-089-91	RES-CHIP	47K	5%	1/10W (US,AEP,UK,G,AED,CIS)
R495	1-216-025-91	RES-CHIP	100	5%	1/10W
R497	1-216-025-91	RES-CHIP	100	5%	1/10W
R500	1-216-065-91	RES-CHIP	4.7K	5%	1/10W (US)
R501	1-216-073-00	METAL CHIP	10K	5%	1/10W
R502	1-216-089-91	RES-CHIP	47K	5%	1/10W
R503	1-216-089-91	RES-CHIP	47K	5%	1/10W
R504	1-216-025-91	RES-CHIP	100	5%	1/10W
R505	1-216-065-91	RES-CHIP	4.7K	5%	1/10W
R506	1-216-041-00	METAL CHIP	470	5%	1/10W
R509	1-216-041-00	METAL CHIP	470	5%	1/10W (US)
R510	1-216-025-91	RES-CHIP	100	5%	1/10W
R511	1-216-025-91	RES-CHIP	100	5%	1/10W
R512	1-216-025-91	RES-CHIP	100	5%	1/10W
R513	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R521	1-216-073-00	METAL CHIP	10K	5%	1/10W
R522	1-216-073-00	METAL CHIP	10K	5%	1/10W
R523	1-216-073-00	METAL CHIP	10K	5%	1/10W
R524	1-216-073-00	METAL CHIP	10K	5%	1/10W
R525	1-216-073-00	METAL CHIP	10K	5%	1/10W
R526	1-216-073-00	METAL CHIP	10K	5%	1/10W
R527	1-216-073-00	METAL CHIP	10K	5%	1/10W
R528	1-216-073-00	METAL CHIP	10K	5%	1/10W
R529	1-216-073-00	METAL CHIP	10K	5%	1/10W
R530	1-216-073-00	METAL CHIP	10K	5%	1/10W
R531	1-216-073-00	METAL CHIP	10K	5%	1/10W
R700	1-216-097-91	RES-CHIP	100K	5%	1/10W
R701	1-216-097-91	RES-CHIP	100K	5%	1/10W
R702	1-216-073-00	METAL CHIP	10K	5%	1/10W
R708	1-216-025-91	RES-CHIP	100	5%	1/10W
R901	1-216-065-91	RES-CHIP	4.7K	5%	1/10W
R902	1-216-081-00	METAL CHIP	22K	5%	1/10W
R903	1-216-049-91	RES-CHIP	1K	5%	1/10W
R925	1-216-037-00	METAL CHIP	330	5%	1/10W
R941	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R942	1-216-097-91	RES-CHIP	100K	5%	1/10W
R943	1-216-065-91	RES-CHIP	4.7K	5%	1/10W
R944	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R945	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
		< VARIABLE RESISTOR >			
RV301	1-238-600-11	RES, ADJ, CARBON 10K			
RV351	1-238-600-11	RES, ADJ, CARBON 10K			
		< VIBRATOR >			
X401	1-567-098-41	VIBRATOR, CRYSTAL (32.768KHz)			
X402	1-781-107-21	VIBRATOR, CERAMIC (16MHz)			

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Ref. No.	Part No.	Description				Remarks
	1-676-972-11	MIC BOARD (HK,MY,SP,KR)				
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		< CAPACITOR >				
C1601	1-162-306-11	CERAMIC	0.01uF	30%	16V	
C1602	1-126-961-11	ELECT	2.2uF	20%	50V	
C1603	1-162-294-31	CERAMIC	0.001uF	10%	50V	
C1604	1-162-215-31	CERAMIC	47PF	5%	50V	
C1605	1-162-290-31	CERAMIC	470PF	10%	50V	
C1606	1-126-956-91	ELECT	0.1uF	20%	50V	
C1607	1-162-215-31	CERAMIC	47PF	5%	50V	
C1608	1-162-282-31	CERAMIC	100PF	10%	50V	
C1609	1-126-961-11	ELECT	2.2uF	20%	50V	
C1610	1-126-964-11	ELECT	10uF	20%	50V	
C1611	1-126-964-11	ELECT	10uF	20%	50V	
C1612	1-162-306-11	CERAMIC	0.01uF	30%	16V	
C1613	1-162-306-11	CERAMIC	0.01uF	30%	16V	
C1614	1-164-159-11	CERAMIC	0.1uF		50V	
		< TERMINAL >				
* EPT160	1-537-738-21	TERMINAL, EARTH				
		< IC >				
IC1601	8-759-634-51	IC M5218AP				
		< JACK >				
J1601	1-793-829-11	JACK, HEADPHONE (MIC)				
		< RESISTOR >				
R1601	1-249-429-11	CARBON	10K	5%	1/4W	
R1602	1-249-417-11	CARBON	1K	5%	1/4W	F
R1603	1-249-441-11	CARBON	100K	5%	1/4W	
R1604	1-249-417-11	CARBON	1K	5%	1/4W	F
R1605	1-249-433-11	CARBON	22K	5%	1/4W	
R1606	1-249-429-11	CARBON	10K	5%	1/4W	
R1607	1-247-885-00	CARBON	180K	5%	1/4W	
R1608	1-247-807-31	CARBON	100	5%	1/4W	
		< VARIABLE RESISTOR >				
RV1601	1-227-171-11	RES, VAR CARBON 50K (MIC VOL)				

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Ref. No.	Part No.	Description	Remarks
	1-671-503-11	OUT SW BOARD	
		*************	
		< CONNECTOR >	
* CN709	1-568-943-11	PIN, CONNECTOR 5P	
CN715	1-506-481-11	PIN, CONNECTOR 2P	
		< SWITCH >	
S701	1-771-218-11	SWITCH, MICRO (MID OUT SW)	
S702	1-771-218-11	SWITCH, MICRO (LID SW)	
S708	1-771-218-11	SWITCH, MICRO (OUT SW)	

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Ref. No.	Part No.	Description			Remarks
	A-4473-381-A	PANEL BOARD, COMPLETE (US,E,MX,AR,AEP,UK,G,AED,CIS,AUS)			
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	A-4473-880-A	PANEL BOARD, COMPLETE (HK,MY,SP,KR)			
		**********************			
	4-226-723-01	HOLDER (FL)			
	4-949-935-41	CUSHION (FL)			
		< CAPACITOR >			
C691	1-162-286-31	CERAMIC	220PF	10%	50V
C692	1-162-286-31	CERAMIC	220PF	10%	50V
C701	1-162-306-11	CERAMIC	0.01uF	30%	16V
C702	1-124-589-11	ELECT	47uF	20%	16V
C703	1-162-290-31	CERAMIC	470PF	10%	50V
C704	1-162-294-31	CERAMIC	0.001uF	10%	50V
C705	1-162-294-31	CERAMIC	0.001uF	10%	50V
C711	1-162-286-31	CERAMIC	220PF	10%	50V
C712	1-162-286-31	CERAMIC	220PF	10%	50V
C713	1-162-286-31	CERAMIC	220PF	10%	50V
C714	1-162-286-31	CERAMIC	220PF	10%	50V
C715	1-162-286-31	CERAMIC	220PF	10%	50V
C716	1-162-286-31	CERAMIC	220PF	10%	50V
C717	1-162-286-31	CERAMIC	220PF	10%	50V
C718	1-162-286-31	CERAMIC	220PF	10%	50V
C719	1-162-286-31	CERAMIC	220PF	10%	50V
C720	1-162-286-31	CERAMIC	220PF	10%	50V
C721	1-162-286-31	CERAMIC	220PF	10%	50V
C722	1-162-286-31	CERAMIC	220PF	10%	50V
C723	1-162-286-31	CERAMIC	220PF	10%	50V
C724	1-162-286-31	CERAMIC	220PF	10%	50V
C725	1-162-286-31	CERAMIC	220PF	10%	50V
C726	1-162-286-31	CERAMIC	220PF	10%	50V
C727	1-162-286-31	CERAMIC	220PF	10%	50V
C728	1-162-286-31	CERAMIC	220PF	10%	50V
C731	1-124-261-00	ELECT	10uF	20%	50V
C732	1-124-261-00	ELECT	10uF	20%	50V
C751	1-162-306-11	CERAMIC	0.01uF	30%	16V
C752	1-124-589-11	ELECT	47uF	20%	16V
C755	1-162-306-11	CERAMIC	0.01uF	30%	16V
C756	1-126-157-11	ELECT	10uF	20%	16V
C757	1-162-290-31	CERAMIC	470PF	10%	50V
C761	1-162-306-11	CERAMIC	0.01uF	30%	16V
C762	1-126-157-11	ELECT	10uF	20%	16V
C763	1-124-259-11	ELECT	4.7uF	20%	16V
C764	1-162-303-11	CERAMIC	0.0033uF	30%	16V
C765	1-126-157-11	ELECT	10uF	20%	16V
C766	1-126-157-11	ELECT	10uF	20%	16V (HK,MY,SP,KR)
C767	1-126-157-11	ELECT	10uF	20%	16V
C768	1-162-294-31	CERAMIC	0.001uF	10%	50V
C769	1-162-294-31	CERAMIC	0.001uF	10%	50V
		< CONNECTOR >			
CN701	1-784-733-11	CONNECTOR, FFC 11P			
CN702	1-785-334-11	PIN, CONNECTOR (LIGHT ANGLE)8P			
CN703	1-785-337-11	PIN, CONNECTOR (LIGHT ANGLE)11P			
CN704	1-785-333-11	PIN, CONNECTOR (LIGHT ANGLE)7P			

PANEL

Ref. No.	Part No.	Description			Remarks
		< DIODE >			
D601	8-719-058-04	DIODE SEL5223S-TP15 (I/⏻)			
D602	8-719-058-04	DIODE SEL5223S-TP15 (TIMER SELECT)			
D603	8-719-058-64	DIODE SEL5823A-TP15 (V-GROOVE)			
D604	8-719-058-64	DIODE SEL5823A-TP15 (CHINEMA SPACE)			
D691	8-719-050-84	DIODE RB441Q-40T-72			
D755	8-719-911-19	DIODE 1SS133T-72			
D756	8-719-911-19	DIODE 1SS133T-72			
D761	8-719-911-19	DIODE 1SS133T-72			
D762	8-719-911-19	DIODE 1SS133T-72			
D763	8-719-911-19	DIODE 1SS133T-72			
		< FERRITE BEAD >			
FB701	1-412-473-21	INDUCTOR	0UH		
FB702	1-412-473-21	INDUCTOR	0UH		
		< FILTER >			
FL701	1-517-984-11	INDICATOR TUBE, FLUORESCENT			
		< IC >			
IC701	8-759-680-21	IC TMP88CS77AF-1A87			
IC702	8-749-011-05	IC GP1U28X (REMOTE SENSOR)			
IC703	8-759-663-65	IC M35501P			
IC704	8-759-083-77	IC BA3830F			
		< TRANSISTOR >			
Q601	8-729-900-80	TRANSISTOR BA1A4M-TP			
Q602	8-729-900-80	TRANSISTOR BA1A4M-TP			
Q603	8-729-900-80	TRANSISTOR BA1A4M-TP			
Q663	8-729-900-80	TRANSISTOR BA1A4M-TP			
Q664	8-729-900-80	TRANSISTOR BA1A4M-TP			
Q665	8-729-900-80	TRANSISTOR BA1A4M-TP			
Q690	8-729-119-78	TRANSISTOR 2SC2785TP-HFE			
Q691	8-729-140-04	TRANSISTOR 2SB1116-TP-LK			
Q692	8-729-140-04	TRANSISTOR 2SB1116-TP-LK			
		< RESISTOR >			
R600	1-249-429-11	CARBON	10K	5%	1/4W
R601	1-249-410-11	CARBON	270	5%	1/4W F
R602	1-249-411-11	CARBON	330	5%	1/4W
R603	1-249-413-11	CARBON	470	5%	1/4W F
R604	1-249-414-11	CARBON	560	5%	1/4W F
R605	1-249-415-11	CARBON	680	5%	1/4W F
R606	1-249-417-11	CARBON	1K	5%	1/4W F
R607	1-249-418-11	CARBON	1.2K	5%	1/4W F
R620	1-249-429-11	CARBON	10K	5%	1/4W
R621	1-249-410-11	CARBON	270	5%	1/4W F
R622	1-249-411-11	CARBON	330	5%	1/4W
R623	1-249-413-11	CARBON	470	5%	1/4W F
R624	1-249-414-11	CARBON	560	5%	1/4W F
R625	1-249-415-11	CARBON	680	5%	1/4W F
R626	1-249-417-11	CARBON	1K	5%	1/4W F
R627	1-249-418-11	CARBON	1.2K	5%	1/4W F
R640	1-249-429-11	CARBON	10K	5%	1/4W
R655	1-249-429-11	CARBON	10K	5%	1/4W
R656	1-249-429-11	CARBON	10K	5%	1/4W
R671	1-249-414-11	CARBON	560	5%	1/4W F
R672	1-249-414-11	CARBON	560	5%	1/4W F
R673	1-249-409-11	CARBON	220	5%	1/4W F

Ref. No.	Part No.	Description			Remarks
R674	1-249-409-11	CARBON	220	5%	1/4W F
R693	1-249-437-11	CARBON	47K	5%	1/4W
R695	1-249-417-11	CARBON	1K	5%	1/4W F
R696	1-249-437-11	CARBON	47K	5%	1/4W
R697	1-249-437-11	CARBON	47K	5%	1/4W
R698	1-249-417-11	CARBON	1K	5%	1/4W F
R701	1-247-903-00	CARBON	1M	5%	1/4W
R702	1-249-401-11	CARBON	47	5%	1/4W F
R703	1-249-401-11	CARBON	47	5%	1/4W F
R704	1-249-429-11	CARBON	10K	5%	1/4W
R705	1-249-429-11	CARBON	10K	5%	1/4W
R706	1-249-429-11	CARBON	10K	5%	1/4W
R707	1-249-429-11	CARBON	10K	5%	1/4W
R708	1-249-429-11	CARBON	10K	5%	1/4W
R709	1-249-429-11	CARBON	10K	5%	1/4W
R710	1-249-429-11	CARBON	10K	5%	1/4W
R711	1-247-807-31	CARBON	100	5%	1/4W
R712	1-247-807-31	CARBON	100	5%	1/4W
R713	1-249-441-11	CARBON	100K	5%	1/4W
R714	1-249-441-11	CARBON	100K	5%	1/4W
R715	1-249-441-11	CARBON	100K	5%	1/4W
R716	1-249-441-11	CARBON	100K	5%	1/4W
R717	1-249-441-11	CARBON	100K	5%	1/4W
R718	1-249-441-11	CARBON	100K	5%	1/4W
R719	1-249-441-11	CARBON	100K	5%	1/4W
R720	1-249-441-11	CARBON	100K	5%	1/4W
R721	1-249-441-11	CARBON	100K	5%	1/4W
R722	1-249-441-11	CARBON	100K	5%	1/4W
R723	1-249-441-11	CARBON	100K	5%	1/4W
R724	1-249-441-11	CARBON	100K	5%	1/4W
R725	1-249-441-11	CARBON	100K	5%	1/4W
R726	1-249-441-11	CARBON	100K	5%	1/4W
R727	1-249-441-11	CARBON	100K	5%	1/4W
R728	1-249-441-11	CARBON	100K	5%	1/4W
R729	1-249-441-11	CARBON	100K	5%	1/4W
R730	1-249-441-11	CARBON	100K	5%	1/4W
R731	1-249-441-11	CARBON	100K	5%	1/4W
R732	1-249-441-11	CARBON	100K	5%	1/4W
R733	1-249-441-11	CARBON	100K	5%	1/4W
R734	1-249-429-11	CARBON	10K	5%	1/4W
R737	1-247-807-31	CARBON	100	5%	1/4W
R750	1-249-429-11	CARBON	10K	5%	1/4W
R755	1-249-417-11	CARBON	1K	5%	1/4W F
R757	1-247-807-31	CARBON	100	5%	1/4W
R758	1-247-807-31	CARBON	100	5%	1/4W
R759	1-247-807-31	CARBON	100	5%	1/4W
R762	1-249-435-11	CARBON	33K	5%	1/4W
R763	1-247-895-00	CARBON	470K	5%	1/4W
R764	1-247-893-11	CARBON	390K	5%	1/4W
R765	1-247-893-11	CARBON	390K	5%	1/4W
R766	1-249-441-11	CARBON	100K	5%	1/4W
R767	1-249-441-11	CARBON	100K	5%	1/4W
R768	1-249-429-11	CARBON	10K	5%	1/4W
					(HK,MY,SP,KR)
R769	1-249-440-11	CARBON	82K	5%	1/4W
					(HK,MY,SP,KR)
R770	1-249-417-11	CARBON	1K	5%	1/4W F
					(HK,MY,SP,KR)
R771	1-249-433-11	CARBON	22K	5%	1/4W
R773	1-249-436-11	CARBON	39K	5%	1/4W

Ref. No.	Part No.	Description			Remarks	
R774	1-249-420-11	CARBON	1.8K	5%	1/4W	F
R801	1-249-437-11	CARBON	47K	5%	1/4W	
R802	1-249-437-11	CARBON	47K	5%	1/4W	
R803	1-249-437-11	CARBON	47K	5%	1/4W	
R804	1-249-437-11	CARBON	47K	5%	1/4W	
R805	1-249-437-11	CARBON	47K	5%	1/4W	
R806	1-249-437-11	CARBON	47K	5%	1/4W	
R807	1-249-437-11	CARBON	47K	5%	1/4W	
R808	1-249-437-11	CARBON	47K	5%	1/4W	
R809	1-249-437-11	CARBON	47K	5%	1/4W	
R810	1-249-437-11	CARBON	47K	5%	1/4W	
R811	1-249-437-11	CARBON	47K	5%	1/4W	
R812	1-249-437-11	CARBON	47K	5%	1/4W	
R813	1-249-437-11	CARBON	47K	5%	1/4W	
R814	1-249-437-11	CARBON	47K	5%	1/4W	
R815	1-249-437-11	CARBON	47K	5%	1/4W	
R816	1-249-437-11	CARBON	47K	5%	1/4W	
R817	1-249-437-11	CARBON	47K	5%	1/4W	
		< SWITCH >				
S601	1-762-875-21	SWITCH, KEYBOARD (I/⏻)				
S602	1-762-875-21	SWITCH, KEYBOARD (DISPLAY)				
S603	1-762-875-21	SWITCH, KEYBOARD (FUNCTION)				
S622	1-762-875-21	SWITCH, KEYBOARD (CHINEMA SPACE)				
S623	1-762-875-21	SWITCH, KEYBOARD (V-GROOVE)				
S624	1-762-875-21	SWITCH, KEYBOARD (MODE SELECT)				
S625	1-762-875-21	SWITCH, KEYBOARD (NAME EDIT/ CHARACTER)				
S626	1-762-875-21	SWITCH, KEYBOARD (CLEAR)				
		< VIBRATOR >				
X701	1-781-312-11	VIBRATOR, CERAMIC (12.5MHz)				

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Ref. No.	Part No.	Description			Remarks	
	1-671-504-11	SENSOR BOARD				
		**************				
		< CONNECTOR >				
CN708	1-506-481-11	PIN, CONNECTOR 2P				
		< DIODE >				
D704	8-719-055-84	DIODE GL528VS1				
		< RESISTOR >				
R711	1-249-415-11	CARBON	680	5%	1/4W	F

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Ref. No.	Part No.	Description			Remarks	
	1-671-789-11	SENSOR 2 BOARD				
		***************				
	4-964-461-02	HOLDER (SENSOR)				
		< TRANSISTOR >				
Q703	8-729-926-31	PHOTO TRANSISTOR PT483F1				

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Ref. No.	Part No.	Description			Remarks	
	A-4473-383-A	SUB PANEL BOARD, COMPLETE				
		***************************				
		< CAPACITOR >				
C619	1-162-294-31	CERAMIC	0.001uF	10%	50V	
C771	1-162-306-11	CERAMIC	0.01uF	30%	16V	
C772	1-162-306-11	CERAMIC	0.01uF	30%	16V	
		< DIODE >				
D605	8-719-058-64	DIODE SEL5823A-TP15 (SET UP)				
D606	8-719-058-64	DIODE SEL5823A-TP15 (SOUND MODE)				
D609	8-719-058-03	DIODE SEL5423E-TP15 (TAPE B ▷)				
D610	8-719-058-03	DIODE SEL5423E-TP15 (TAPE B ◁)				
D611	8-719-058-03	DIODE SEL5423E-TP15 (TAPE A ▷)				
D612	8-719-058-03	DIODE SEL5423E-TP15 (TAPE A ◁)				
D613	8-719-058-04	DIODE SEL5223S-TP15 (MD REC)				
D614	8-719-058-04	DIODE SEL5223S-TP15 (TAPE REC PAUSE/ START)				
D617	8-719-058-64	DIODE SEL5823A-TP15 (GROOVE-EX)				
D618	8-719-058-64	DIODE SEL5823A-TP15 (GROOVE)				
D619	8-719-072-81	DIODE SELU5E23C-STP15 (MD INCERT LIGHT)				
D651	8-719-056-13	DIODE SML79423C-TP15 (MD)				
D652	8-719-056-13	DIODE SML79423C-TP15 (CD)				
		< TERMINAL >				
* EPT701	1-537-738-21	TERMINAL, EARTH				
		< TRANSISTOR >				
Q605	8-729-900-80	TRANSISTOR BA1A4M-TP				
Q607	8-729-900-80	TRANSISTOR BA1A4M-TP				
Q609	8-729-900-80	TRANSISTOR BA1A4M-TP				
Q611	8-729-900-80	TRANSISTOR BA1A4M-TP				
Q613	8-729-900-80	TRANSISTOR BA1A4M-TP				
Q617	8-729-900-80	TRANSISTOR BA1A4M-TP				
Q651	8-729-900-80	TRANSISTOR BA1A4M-TP				
Q652	8-729-900-80	TRANSISTOR BA1A4M-TP				
		< RESISTOR >				
R608	1-249-420-11	CARBON	1.8K	5%	1/4W	F
R609	1-249-422-11	CARBON	2.7K	5%	1/4W	F
R610	1-247-843-11	CARBON	3.3K	5%	1/4W	
R611	1-249-425-11	CARBON	4.7K	5%	1/4W	F
R612	1-249-427-11	CARBON	6.8K	5%	1/4W	F
R613	1-249-429-11	CARBON	10K	5%	1/4W	
R614	1-249-431-11	CARBON	15K	5%	1/4W	
R615	1-249-434-11	CARBON	27K	5%	1/4W	
R641	1-249-410-11	CARBON	270	5%	1/4W	F
R642	1-249-411-11	CARBON	330	5%	1/4W	
R643	1-249-413-11	CARBON	470	5%	1/4W	F
R644	1-249-414-11	CARBON	560	5%	1/4W	F
R645	1-249-415-11	CARBON	680	5%	1/4W	F
R646	1-249-417-11	CARBON	1K	5%	1/4W	F
R647	1-249-418-11	CARBON	1.2K	5%	1/4W	F
R648	1-249-420-11	CARBON	1.8K	5%	1/4W	F
R649	1-249-422-11	CARBON	2.7K	5%	1/4W	F
R650	1-247-843-11	CARBON	3.3K	5%	1/4W	
R651	1-249-425-11	CARBON	4.7K	5%	1/4W	F
R652	1-249-427-11	CARBON	6.8K	5%	1/4W	F
R653	1-249-429-11	CARBON	10K	5%	1/4W	

SUB PANEL | SUB TRANS | TRANS

Ref. No.	Part No.	Description	Remarks
R675	1-249-409-11	CARBON 220 5% 1/4W	F
R676	1-249-409-11	CARBON 220 5% 1/4W	F
R677	1-249-409-11	CARBON 220 5% 1/4W	F
R679	1-249-409-11	CARBON 220 5% 1/4W	F
R680	1-249-409-11	CARBON 220 5% 1/4W	F
R681	1-249-409-11	CARBON 220 5% 1/4W	F
R682	1-249-409-11	CARBON 220 5% 1/4W	F
R683	1-249-409-11	CARBON 220 5% 1/4W	F
R684	1-249-409-11	CARBON 220 5% 1/4W	F
R687	1-249-409-11	CARBON 220 5% 1/4W	F
R688	1-249-409-11	CARBON 220 5% 1/4W	F
R689	1-249-409-11	CARBON 220 5% 1/4W	F
R690	1-249-409-11	CARBON 220 5% 1/4W	F
R691	1-249-409-11	CARBON 220 5% 1/4W	F
R692	1-249-409-11	CARBON 220 5% 1/4W	F
R752	1-249-401-11	CARBON 47 5% 1/4W	F
R753	1-247-807-31	CARBON 100 5% 1/4W	
R754	1-247-807-31	CARBON 100 5% 1/4W	
		< SWITCH >	
S607	1-762-875-21	SWITCH, KEYBOARD (MD REC MODE)	
S608	1-762-875-21	SWITCH, KEYBOARD (MD REC)	
S609	1-762-875-21	SWITCH, KEYBOARD (SYNC REC)	
S610	1-762-875-21	SWITCH, KEYBOARD (TAPE REC PAUSE/ START)	
S612	1-762-875-21	SWITCH, KEYBOARD (HIGH SPEED CD-MD SYNC)	
S613	1-762-875-21	SWITCH, KEYBOARD (GROOVE-EX)	
S614	1-762-875-21	SWITCH, KEYBOARD (GROOVE)	
S641	1-762-875-21	SWITCH, KEYBOARD (TAPE A ◁)	
S642	1-762-875-21	SWITCH, KEYBOARD (TAPE A ▷)	
S643	1-762-875-21	SWITCH, KEYBOARD (TAPE B ◁)	
S644	1-762-875-21	SWITCH, KEYBOARD (TAPE B ▷)	
S645	1-762-875-21	SWITCH, KEYBOARD (■)	
S646	1-762-875-21	SWITCH, KEYBOARD (►II CD)	
S647	1-762-875-21	SWITCH, KEYBOARD (►II MD)	
S648	1-762-875-21	SWITCH, KEYBOARD (⏏ MD)	
S649	1-762-875-21	SWITCH, KEYBOARD (TUNING ►►)	
S650	1-762-875-21	SWITCH, KEYBOARD (TUNING ◄◄)	
S651	1-762-875-21	SWITCH, KEYBOARD (PRESET ►►I)	
S652	1-762-875-21	SWITCH, KEYBOARD (PRESET I◄◄)	
S653	1-762-875-21	SWITCH, KEYBOARD (TUNER/BAND)	
S701	1-772-502-11	CONTROLLER, JOY STICK (PUSH ENTER)	
S751	1-473-392-11	ENCODER, ROTARY (VOLUME)	

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Ref. No.	Part No.	Description	Remarks
	1-676-976-11	SUB TRANS BOARD (US,AEP,UK,G,AED,CIS) ****************	
		< CAPACITOR >	
⚠C901	1-113-925-11	CERAMIC 0.01uF 20% 250V	
C902	1-126-768-11	ELECT 2200uF 20% 16V	
C903	1-126-933-11	ELECT 100uF 20% 16V	
C904	1-104-664-11	ELECT 47uF 20% 16V	
		< CONNECTOR >	
CN901	1-564-321-00	PIN, CONNECTOR 2P	
* CN902	1-564-321-21	PIN, CONNECTOR 2P	
CN903	1-785-330-11	PIN, CONNECTOR (LIGHT ANGLE)4P	
		< DIODE >	
D901	8-719-024-99	DIODE 11ES2-NTA2B	
D902	8-719-024-99	DIODE 11ES2-NTA2B	
D903	8-719-024-99	DIODE 11ES2-NTA2B	
D904	8-719-024-99	DIODE 11ES2-NTA2B	
D906	8-719-911-19	DIODE 1SS133T-72	
D907	8-719-911-19	DIODE 1SS133T-72	
D908	8-719-911-19	DIODE 1SS133T-72	
		< IC >	
IC901	8-759-158-62	IC TA78057S	
		< TRANSISTOR >	
Q901	8-729-119-78	TRANSISTOR 2SC2785TP-HFE	
		< RESISTOR >	
R901	1-249-429-11	CARBON 10K 5% 1/4W	
R902	1-249-441-11	CARBON 100K 5% 1/4W	
R903	1-249-416-11	CARBON 820 5% 1/4W	F
R904	1-249-416-11	CARBON 820 5% 1/4W	F
R905	1-249-419-11	CARBON 1.5K 5% 1/4W	F
		< RELAY >	
RY901	1-755-276-11	RELAY, POWER	
		< TRANSFORMER >	
⚠T902	1-435-210-11	TRANSFORMER, POWER (AEP,UK,G,AED,CIS)	
⚠T902	1-435-209-11	TRANSFORMER, POWER (US)	

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Ref. No.	Part No.	Description	Remarks
	1-676-975-11	TRANS BOARD ************	
	1-533-293-11	FUSE HOLDER	
		< CONNECTOR >	
CN911	1-564-321-00	PIN, CONNECTOR 2P (E,MX,AR,HK,MY,SP,KR)	
* CN913	1-564-510-11	PLUG, CONNECTOR 7P	
* CN914	1-564-517-11	PLUG, CONNECTOR 2P	
		< FUSE >	
⚠F911	1-533-453-11	FUSE, GLASS TUBE (DIA. 5) T5AL 125V (US)	
⚠F911	1-533-471-11	FUSE, GLASS TUBE (DIA. 5) T4AL 250V (E,MX,AR,HK,MY,SP)	
⚠F912	1-533-469-11	FUSE, GLASS TUBE (DIA. 5) T2.5AL 250V (E,AR,HK,MY,SP,KR)	
⚠F913	1-533-468-11	FUSE, GLASS TUBE (DIA. 5) T2AL 250V (E,AR,HK,MY,SP,AUS)	
⚠F914	1-533-473-11	FUSE, GLASS TUBE (DIA. 5)T6.3AL 250V (AEP,UK,G,AED,CIS)	
⚠F915	1-533-473-11	FUSE, GLASS TUBE (DIA. 5) T6.3AL 250V (AEP,UK,G,AED,CIS)	
⚠F916	1-533-949-31	FUSE, CYLINDRICAL (TIME LUG) T8AL 250V (E,MX,AR,HK,MY,SP,KR,AUS)	
⚠F917	1-533-949-31	FUSE, CYLINDRICAL (TIME LUG) T8AL 250V (E,MX,AR,HK,MY,SP,KR,AUS)	
		< RESISTOR >	
⚠R911	1-219-122-91	FUSIBLE 0.33 5% 1/4W	

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

Ref. No.	Part No.	Description			Remarks
⚠R912	1-219-122-91	FUSIBLE	0.33	5%	1/4W
⚠R913	1-219-119-81	FUSIBLE	0.1	5%	1/4W
⚠R916	1-202-725-00	SOLID	3.3M	10%	1/2W (US)
⚠R917	1-219-123-11	FUSIBLE	0.47	5%	1/4W
⚠R936	1-216-349-81	METAL OXIDE	1	5%	1W
		< SWITCH >			
⚠S911	1-771-291-11	SWITCH, POWER (VOLTAGE SELECTOR) (E,AR,HK,MY,SP)			
		< TRANSFORMER >			
⚠T901	1-435-535-11	TRANSFORMER, POWER (E,MX,AR,HK,MY,SP,KR,AUS)			
⚠T901	1-435-536-11	TRANSFORMER, POWER (AEP,UK,G,AED,CIS)			
⚠T901	1-435-538-11	TRANSFORMER, POWER (US)			

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MISCELLANEOUS
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Ref. No.	Part No.	Description
3	1-693-481-41	TUNER (FM/AM) (US)
3	1-693-482-41	TUNER (FM/AM) (MX,AR,HK,MY,SP,KR,AUS)
3	1-693-499-41	TUNER (FM/AM) (AEP,UK,G,AED,CIS)
3	1-693-484-41	TUNER (FM/AM) (E)
4	1-769-972-11	WIRE (FLAT TYPE) (13 CORE) (U,E,MX,AR,HK,MY,SP,KR,AUS)
4	1-773-004-11	WIRE (FLAT TYPE) (15 CORE) (AEP,UK,G,AED,CIS)
8	1-775-151-11	WIRE (FLAT TYPE) (17 CORE)
9	1-775-236-11	WIRE (FLAT TYPE) (27 CORE)
15	1-773-217-11	WIRE (FLAT TYPE) (25 CORE)
64	1-769-938-11	WIRE (FLAT TYPE) (11 CORE)
102	1-757-179-11	WIRE (FLAT TYPE) (19 CORE)
103	1-773-042-11	WIRE (FLAT TYPE) (17 CORE)
105	1-773-020-11	WIRE (FLAT TYPE) (15 CORE)
⚠110	1-690-608-11	CORD, POWER (AUS)
⚠110	1-769-079-21	CORD, POWER (KR)
⚠110	1-777-071-51	CORD, POWER (HK,MY,SP,AEP,UK,G,AED,CIS)
⚠110	1-783-531-11	CORD, POWER (US)
⚠110	1-783-941-21	CORD, POWER (AR)
⚠110	1-791-901-11	CORD, POWER (E,MX)
112	1-500-386-11	FILTER, CLAMP (FERRITE CORE)
176	1-471-061-11	MAGNET ASSY
⚠251	8-820-122-01	OPTICAL PICK-UP KSM-213DHAP/Z-NP
252	1-769-069-11	WIRE (FLAT TYPE) (16 CORE)
457	1-678-514-11	FLEXIBLE BOARD
⚠458	A-4672-541-A	OPTICAL PICK-UP KMS-260B/J1N
FL701	1-517-984-11	INDICATOR TUBE, FLUORESCENT
HR901	1-500-670-11	HEAD, OVER LIGHT
M1	X-3378-241-1	MOTOR ASSY (CAPSTAN)
M101	A-4672-898-A	MOTOR ASSY, SPINDLE
M102	A-4672-900-A	MOTOR ASSY, SLED
M103	A-4672-975-A	MOTOR ASSY, LOADING
M701	X-4950-341-1	MOTOR (CLAMP) ASSY
M702	X-4950-342-1	MOTOR (LOADING) ASSY
M941	1-763-072-11	FAN, DC
S102	1-771-957-11	SWITCH, PUSH (2 KEY) (REFLECT/PROTECT SW)
S707	1-418-045-11	ENCODER, ROTARY (DISC TRAY ADDRESS DET.)

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ACCESSORIES & PACKING MATERIALS
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Ref. No.	Part No.	Description
	1-418-914-11	REMOTE COMMANDER (RM-SR150)
	1-501-374-51	ANTENNA, LOOP (AM)
	1-501-594-31	ANTENNA (FM) (AEP,UK,G,CIS)
	1-501-659-41	ANTENNA (FM) (US,E,SP,MY,HK,AR,KR,AUS)
⚠	1-569-008-21	ADAPTOR, CONVERSION (MY,SP)
	1-769-306-11	CORD, SPEAKER
⚠	1-770-019-11	ADAPTOR, CONVERSION PLUG 3P (HK,UK)
	4-229-972-11	MANUAL, INSTRUCTION (ENGLISH) (EXCEPT G,KR)
	4-229-972-21	MANUAL, INSTRUCTION (SPANISH) (MX,AR)
	4-229-972-31	MANUAL, INSTRUCTION (FRENCH,SPANISH) (AEP,E,SP,MY)
	4-229-972-41	MANUAL, INSTRUCTION (GERMAN) (AEP,G)
	4-229-972-51	MANUAL, INSTRUCTION (DUTCH,ITALLIAN,POTUGUESE) (AEP)
	4-229-972-61	MANUAL, INSTRUCTION (DANISH,FINNISH,SWEDISH) (AEP)
	4-229-972-71	MANUAL, INSTRUCTION (POLISH,RUSSIAN) (CIS)
	4-229-972-81	MANUAL, INSTRUCTION (CHINESE)(SP,MY,HK)
	4-229-972-91	MANUAL, INSTRUCTION (KOREAN) (KR)
	4-972-322-01	CUSHION (FOOT)
	4-991-151-41	COVER, BATTERY (FOR RM-SR150)

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HARDWARE LIST
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Ref. No.	Part No.	Description
#1	7-685-646-79	SCREW +BVTP 3X8 TYPE2 N-S
#2	7-685-871-01	SCREW +BVTT 3X6 (S)
#3	7-685-872-09	SCREW +BVTT 3X8 (S)
#4	7-685-881-09	SCREW +BVTT 4X8 (S)
#5	7-685-650-79	SCREW +BVTP 3X16 TYPE2 N-S
#7	7-685-146-11	SCREW +P 3X8 TYPE2 NON-SLIT (E,MX,AR,HK,MY,SP,KR,AUS)
#8	7-685-850-04	SCREW +BVTT 2X3 (S)
#9	7-685-204-19	SCREW +KTP 2X6 TYPE2 NON-SLIT

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

REVISION HISTORY

Clicking the version allows you to jump to the revised page.
Also, clicking the version at the upper right on the revised page allows you to jump to the next revised page.

Ver.	Date	Description of Revision
1.2	2001.12	Correction of jig's Parts No. (A→J) (SPM-01055)
1.1	2001.03	Changing of parts supply classification of Tape mechanism deck (SPM-01007)
1.0	2000.07	New